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Resources
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Service

Montana Basin Outlook Report

April 1, 1999



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Basin Outlook Reports

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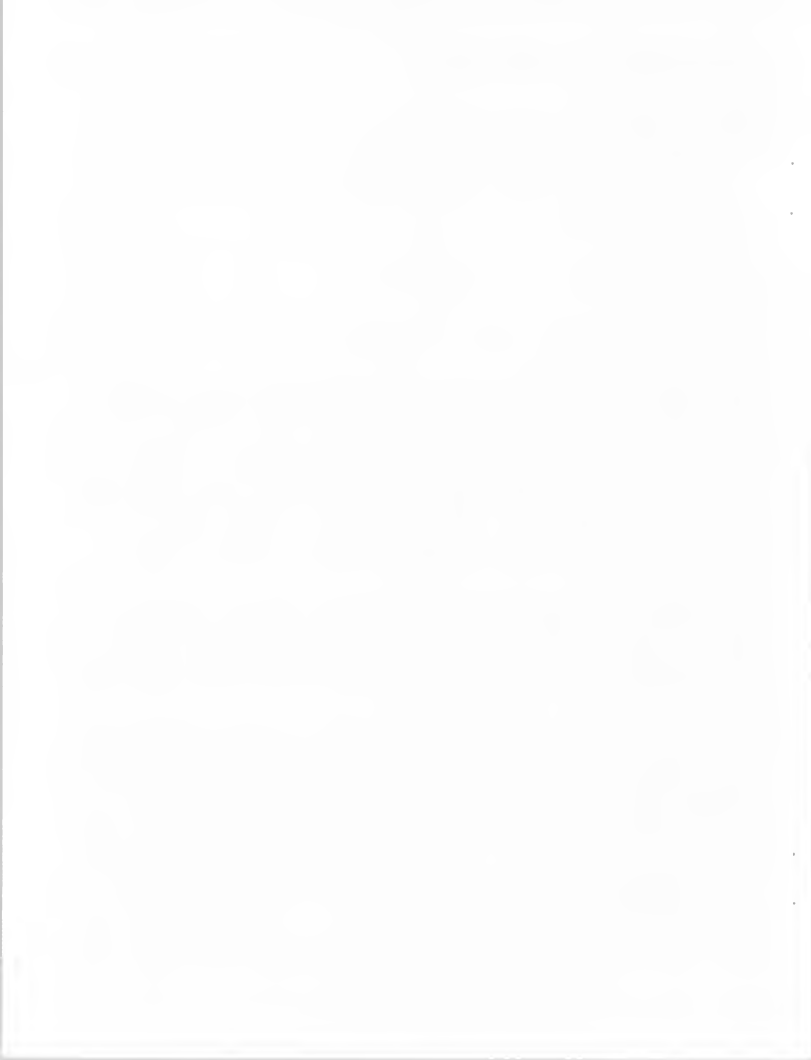
Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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Natural Resources Conservation Service (formerly the Soil Conservation Service)
Bozeman, Montana

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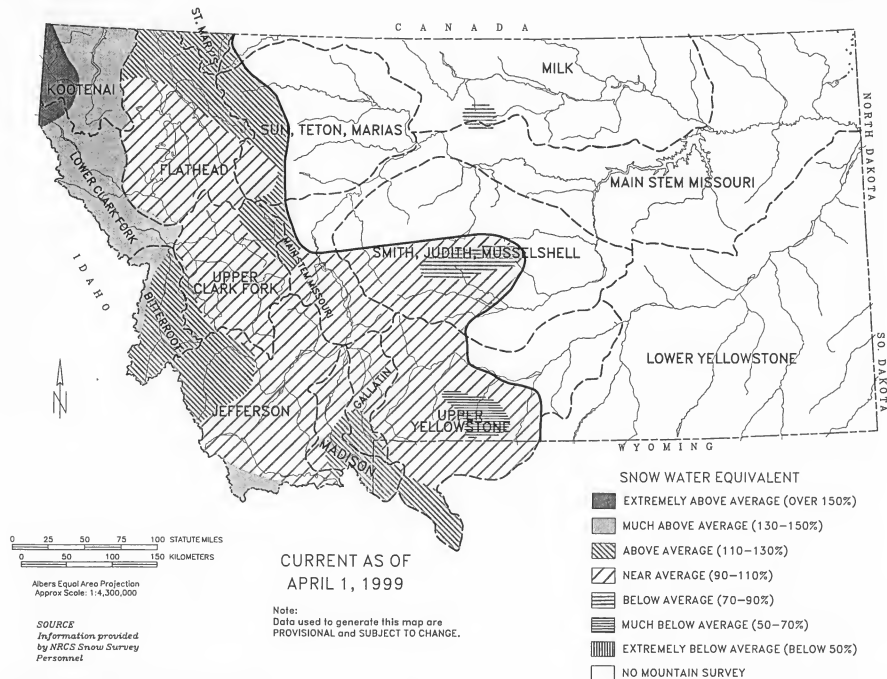
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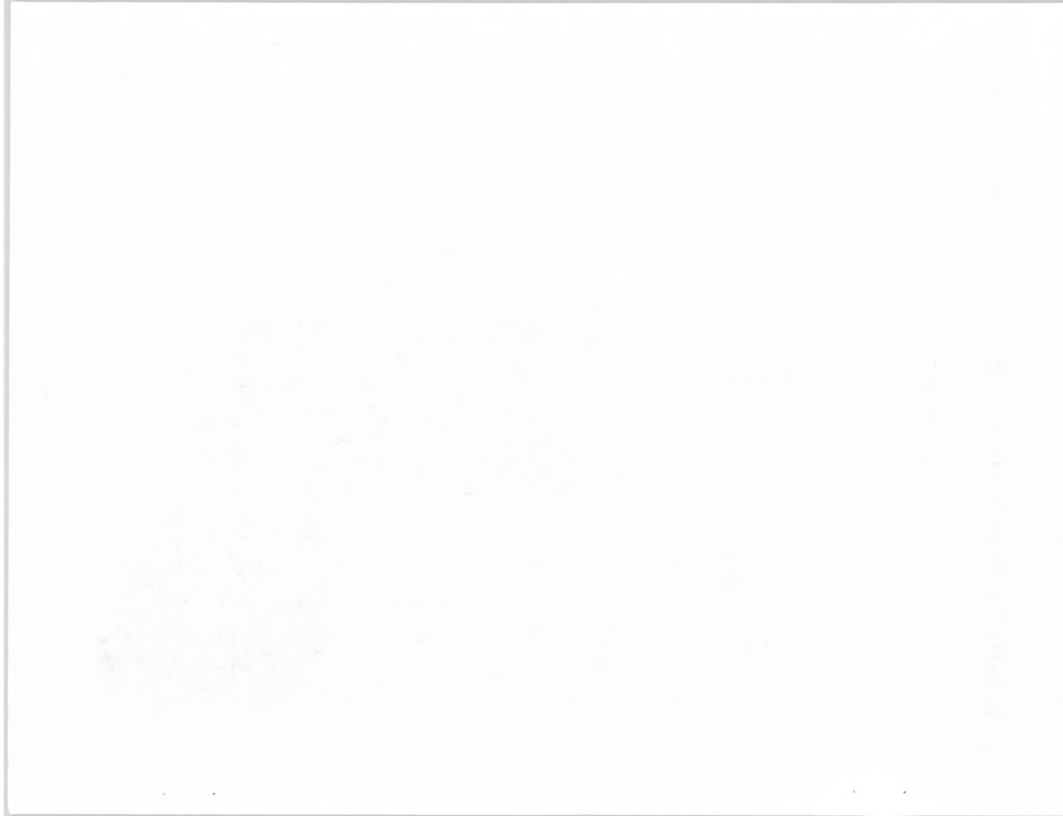
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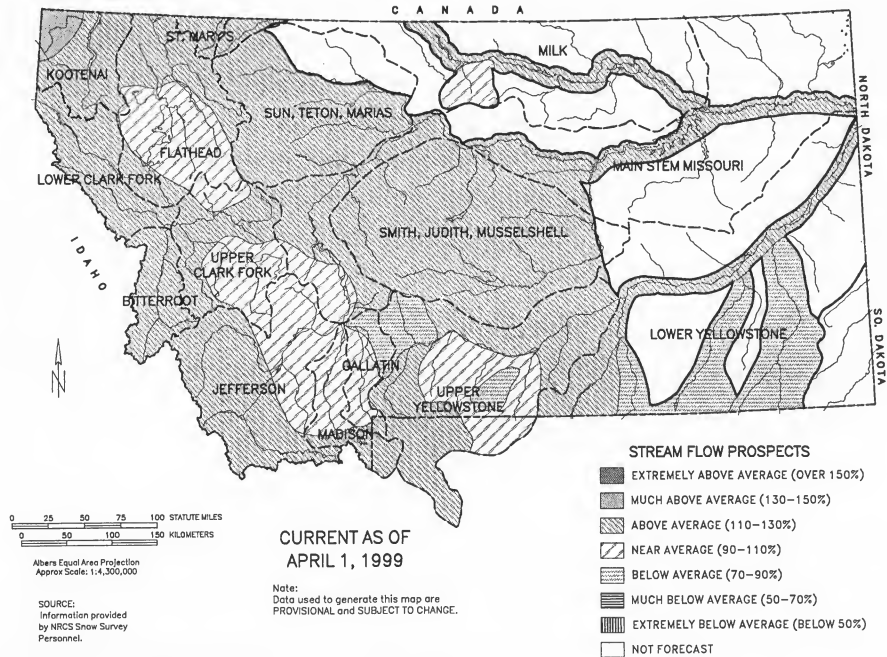
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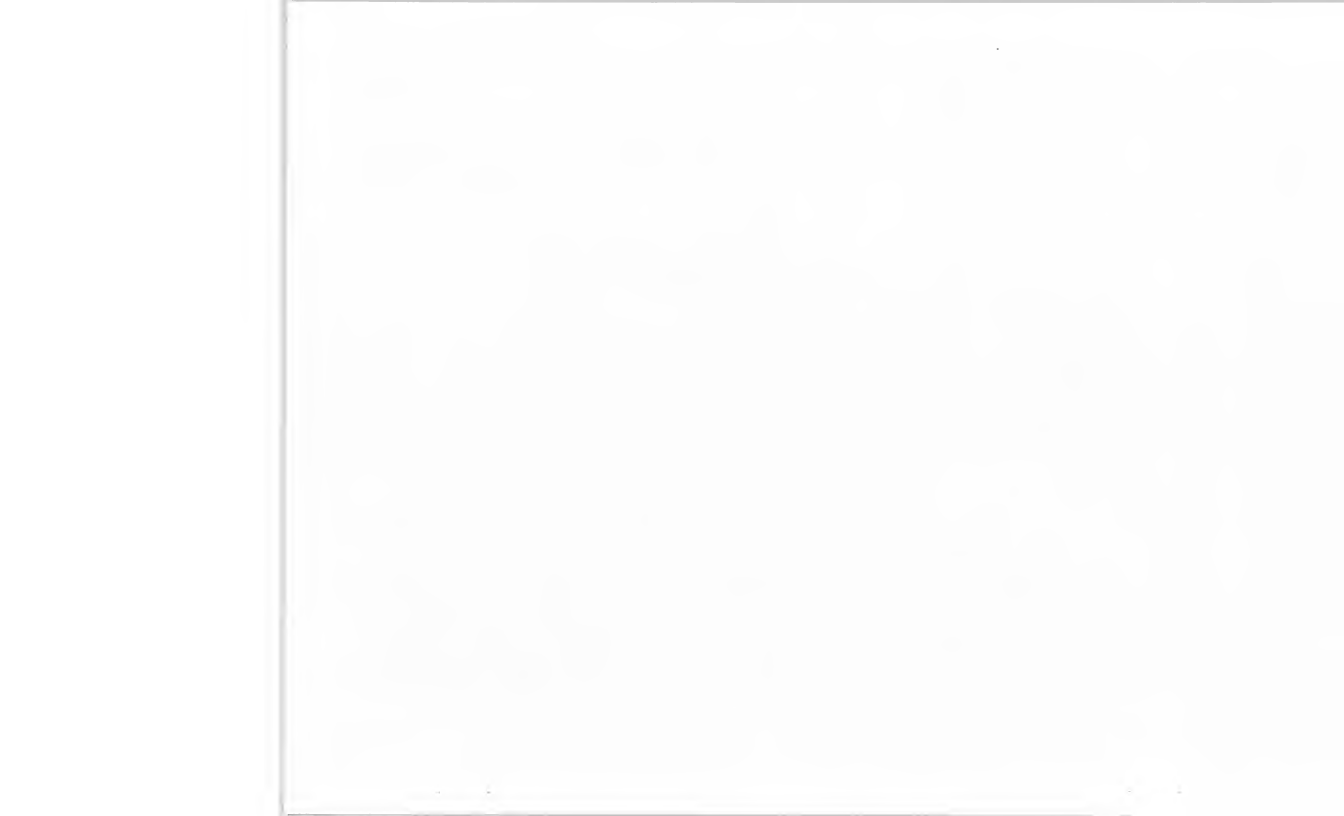
Shad Weber
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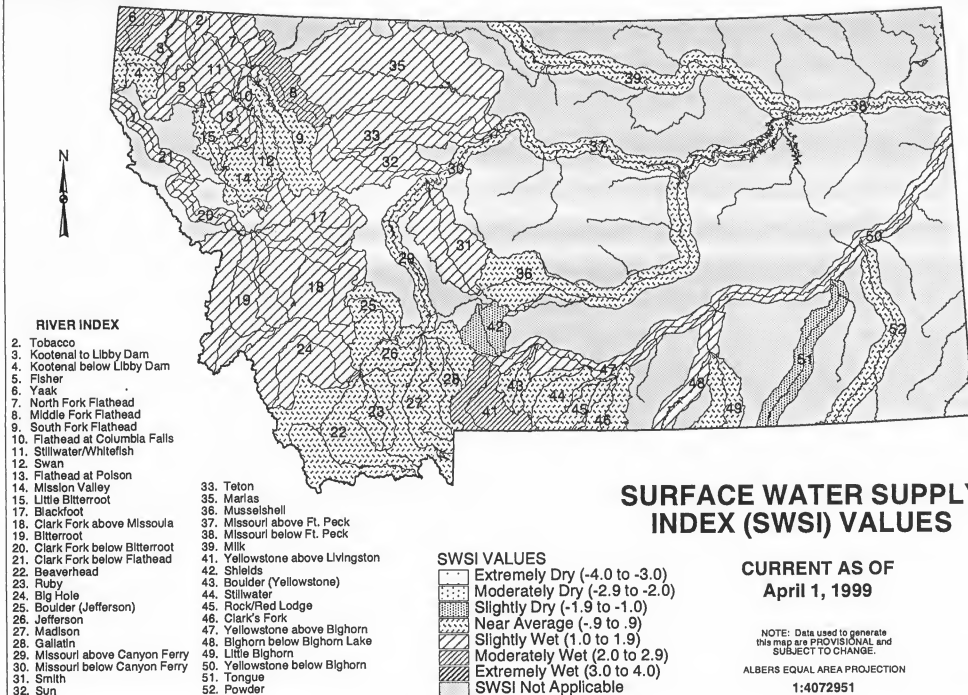
MOUNTAIN SNOWWATER EQUIVALENT FOR MONTANA











SUMMARY OF MONTANA SNOTEL AND SNOW COURSE DATA

APRIL 1999

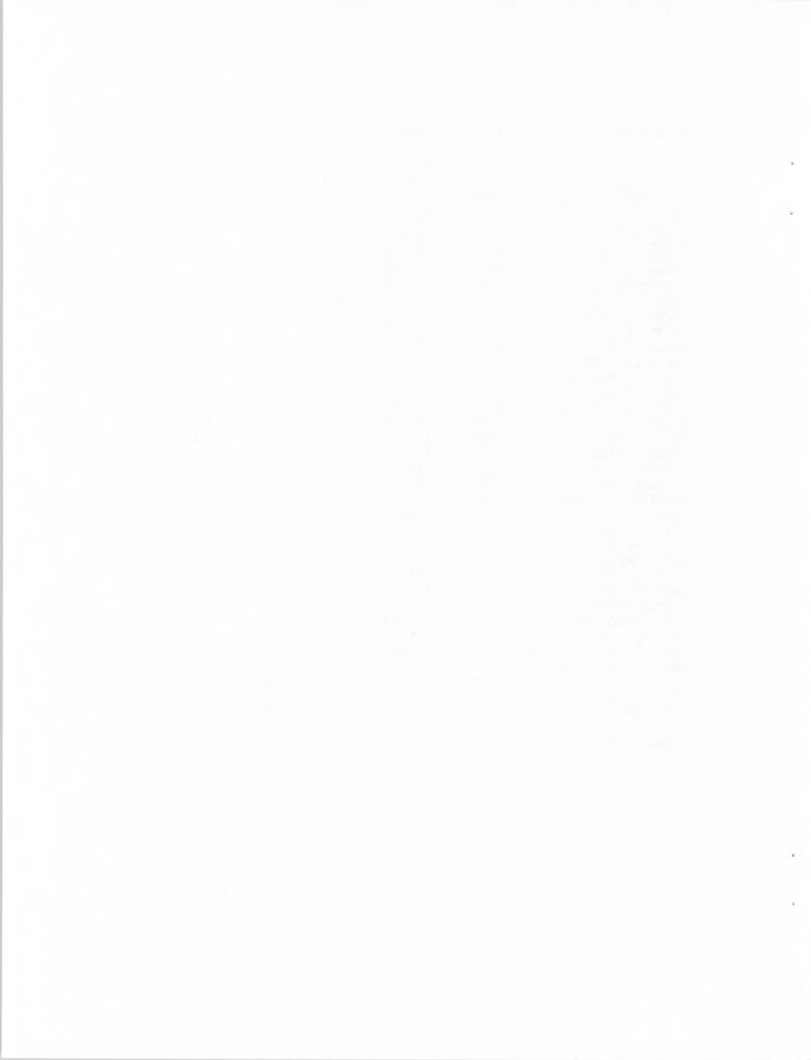
SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
ABE LINCOLN	4440	3/30/99	78	28.1	14.1	--
ABUNDANCE LAKE	8800	3/28/99	62	23.8	16.4	20.8
ALBRO LAKE PILLOW	8300	4/01/99	---	21.1	15.8	20.3
AMBROSE	6480	3/25/99	43	17.4	9.4	13.2
ASHLEY LAKE	4000	3/23/99	16	4.6	2.8	5.8
ARCH FALLS	7350	3/26/99	36	10.5	8.2	12.8
ASHLEY DIVIDE	4820	3/23/99	16	5.7	3.2	6.6
BADGER PASS PILLOW	6900	4/01/99	---	44.8	22.9	36.5
BALD RIDGE	7500	3/30/99	33	11.3	9.1	13.4
BANFIELD MTN PILLOW	5600	4/01/99	---	29.1	14.0	20.2
BARRE CREEK	5500	3/24/99	137	59.8	31.8	45.3
BARRE MIDWAY	4600	3/24/99	111	44.6	24.3	35.1
BARRE TRAIL	3800	3/24/99	37	14.1	6.0	8.4
BARKER LAKES PILLOW	8250	4/01/99	---	16.2	12.1	15.4
BASIN CREEK PILLOW	7180	4/01/99	---	9.0	9.7	8.7
BASSOO PEAK	5150	3/29/99	29	9.8	5.0	11.3
BEAGLE SPGS PILLOW	8850	4/01/99	---	12.0	9.4	8.4
BEAR BASIN	8150	3/26/99	49	18.2	16.5	21.4
BEAVER CREEK PILLOW	7850	4/01/99	---	20.0	17.5	18.3
BERRY MEADOW	7000	3/31/99	22	7.0	4.2	8.0
BIG CREEK	6750	4/01/99	112	43.6	32.6	45.7
BIG SNOWY	7150	4/06/99	56	18.2	11.1	22.4
BISSON CREEK PILLOW	4920	4/01/99	---	9.0	8.8	10.2
BLACK BEAR PILLOW	7950	4/01/99	---	50.5	37.5	38.5
BLACK MOUNTAIN	7750	3/25/99	43	14.0	15.8	16.3
BLACK PINE PILLOW	7100	4/01/99	---	15.3	8.2	12.7
BLACKTAIL	5650	3/23/99	40	15.6	8.0	14.2
BLOODY DICK PILLOW	7550	4/01/99	---	14.3	10.2	12.6
BLUE LAKE	5900	4/05/99	75	30.0	11.8	25.3
BOTS SOTS	7750	3/31/99	17	5.0	8.7	8.2
BOULDER MTN PILLOW	7950	4/01/99	---	22.7	16.1	20.6
BOX CANYON PILLOW	6700	4/01/99	---	12.1	8.2	10.3
BOXELDER CREEK	5100	4/01/99	31	9.3	6.0	8.3
BRACKETT CR PILLOW	7320	4/01/99	---	24.5	18.1	21.2
BRANHAM LAKES	8850	3/25/99	62	24.0	21.6	30.2
BRISTOW CREEK	3900	3/29/99	42	15.1	5.7	9.4
BRUSH CREEK TIMBER	5000	3/30/99	23	7.0	3.1	9.5
BULL MOUNTAIN	6600	3/31/99	17	6.8	2.9	6.4
CABIN CREEK	5200	3/31/99	20	5.6	2.9	6.2
CALL ROAD	8050	4/03/99	35	10.5E	10.9	12.4
CALVERT CR PILLOW	6430	4/01/99	---	10.7	7.3	8.9
CAMP MISERY	6400	4/01/99	138	52.4	40.9	49.0
CAMP SENIA	7890	3/31/99	17	3.7	6.7	6.6

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
CARROT BASIN PILLOW	9000	4/01/99	---	32.2	25.5	28.3
CARTER CREEK	7400	3/31/99	20	6.6	7.5	5.9
CEDAR GROVE	3760	3/31/99	45	17.3	5.9	12.2
CHESSMAN RESERVOIR	6200	3/30/99	6	1.4	1.5	3.9
CHICKEN CREEK	4060	3/29/99	53	19.6	10.7	14.0
CLOVER MDW PILLOW	8800	4/01/99	---	18.1	17.3	18.6
COLE CREEK PILLOW	7850	4/01/99	---	10.4	13.3	17.3
COLLEY CREEK	6300	3/25/99	25	7.5	6.0	8.9
COMBINATION PILLOW	5600	4/01/99	---	4.4	3.0	5.8
COPPER BOTTOM PILLOW	5200	4/01/99	---	14.3	5.7	11.7
COPPER CAMP PILLOW	6950	4/01/99	---	41.2	17.8	34.9
COPPER CREEK	5700	3/28/99	45	14.5	6.4	14.2
COPPER MOUNTAIN	7700	3/25/99	34	10.6	10.0	11.4
COTTONWOOD CREEK	6400	3/25/99	27	8.0	7.7	8.8
COYOTE HILL	4200	3/30/99	30	10.2	6.3	9.5
CREVICE MOUNTAIN	8400	3/27/99	38	10.0	9.3	10.9
CRYSTAL LAKE PILLOW	6050	4/01/99	---	10.3	8.0	12.8
DAD CREEK LAKE	8400	4/02/99	48	13.4	14.6	15.1
DAISY PEAK	7600	3/29/99	30	10.3	7.2	10.6
DAISY PEAK PILLOW	7600	4/01/99	---	11.7	8.9	13.4
DAISY PEAK	7600	3/29/99	30	10.3	7.2	10.6
DALY CREEK PILLOW	5780	4/01/99	---	13.8	9.6	11.9
DARKHORSE LK. PILLOW	8700	4/01/99	---	32.1	24.2	33.7
DAVIS CREEK	5400	4/02/99	98	37.0	20.3	24.3
DEADMAN CR PILLOW	6450	4/01/99	---	10.5	9.1	10.2
DEADMAN CREEK	6450	3/26/99	26	8.8	9.2	11.3
DESERT MOUNTAIN	5600	4/05/99	45	17.4	10.6	15.5
DISCOVERY BASIN	7050	3/31/99	33	9.6	10.2	11.3
DIVIDE PILLOW	7800	4/01/99	---	10.6	9.6	11.3
DIX HILL	6400	2/38/99	24	8.4	8.0	11.3
DUFUYER CREEK PILLOW	5750	4/01/99	---	12.7	3.9	12.9
EAGLE CREEK	7000	3/30/99	37	14.0	10.5	14.4
EAST FORK R.S.	5400	3/26/99	16	4.6	3.2	5.6
EL DORADO MINE	7800	3/29/99	57	20.5	19.4	21.6
ELK HORN SPRINGS	7800	3/28/99	32	10.5	7.5	9.3
ELK PEAK	8000	3/29/99	49	17.4	11.4	17.3
EMERY CREEK PILLOW	4350	4/01/99	---	16.1	10.1	16.3
FATTY CREEK	5500	4/01/99	74	25.1	17.6	24.3
FISH CREEK	8000	3/25/99	34	11.4	9.8	9.9
FISHER CREEK PILLOW	9100	4/01/99	---	40.1	29.3	36.1
FIVE-BULL	5700	3/30/99	23	6.8	3.1	6.3
FLATTOP MTN PILLOW	6300	4/01/99	---	58.8	37.5	47.1
FLEECER RIDGE	7500	3/31/99	34	13.2	7.3	11.3
FOOLHEN	8280	3/28/99	48	17.2	15.2	17.1
FOREST LAKE	6400	3/30/99	36	13.0	9.0	12.6
FOUR MILE	6900	3/26/99	25	7.9	5.6	8.9
FOURTH OF JULY	3450	3/30/99	41	13.5	5.5	7.4
FRED BURR PASS	8000	3/29/99	68	25.2	22.8	25.4
FREIGHT CREEK	6000	4/05/99	52	19.8	5.7	15.5
FROHNER MDWS PILLOW	6480	4/01/99	---	7.2	6.5	8.7

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
GARVER CREEK PILLOW	4250	4/01/99	---	13.3	8.7	10.1
GARVER CREEK	4250	4/02/99	39	14.6	7.3	10.2
GIBBONS PASS	7100	3/26/99	66	26.4	17.0	23.2
GOAT MOUNTAIN	7000	4/01/99	36	11.1	4.2	10.5
GOLD CREEK LAKE	7200	2/39/99	43	17.4	11.6	15.9
GOLD STONE	8100	4/02/99	54	18.1	14.3	17.4
GRASSHOPPER	7000	3/29/99	19	5.8	5.6	6.2
GRAVE CRK PILLOW	4300	4/01/99	---	16.8	12.8	16.7
GRIFFIN CR DIVIDE	5150	3/29/99	30	10.0	5.0	11.2
GUNSIGHT LAKE	6300	3/26/99	109	47.6	27.8	40.0
HAND CREEK PILLOW	5030	4/01/99	---	13.4	8.3	13.3
HAWKINS LAKE PILLOW	6450	4/01/99	---	39.4	17.8	29.0
HAYMAKER	8050	3/29/99	39	11.8	10.2	12.7
HEART LAKE TRAIL	4800	3/31/99	80	27.9	15.4	21.6
HEBGEN DAM	6550	3/30/99	33	12.2	11.0	12.1
HELL ROARING DIVIDE	5770	3/31/99	91	33.8	21.2	31.0
HERRIG JUNCTION	4850	3/29/99	87	34.2	20.7	26.0
HOLBROOK	4530	3/31/99	28	9.2	5.0	9.0
HOODOO BASIN	6050	3/31/99	160	61.3	34.4	51.0
HOODOO BASIN PILLOW	6050	4/01/99	---	61.4	30.8	47.0
INDEPENDENCE	7850	3/25/99	51	19.1	13.4	18.3
INTERGAARD	6450	3/26/99	23	7.2	7.1	8.6
JAHNKE LAKE TRAIL	7200	4/02/99	28	8.4	8.6	10.0
JOHNSON PARK	6450	3/29/99	10	3.4	3.4	6.9
KEELER CREEK	3300	4/01/99	68	25.0	9.6	10.8
KINGS HILL	7500	3/26/99	40	12.7	9.2	14.5
KISHENEHN	3890	3/27/99	25	8.1	6.6	7.0
KRAFT CREEK PILLOW	4750	4/01/99	---	13.5	8.5	15.3
LAKE CREEK	6100	4/03/99	24	8.6	8.7	8.5
LAKEVIEW CANYON	6930	3/30/99	43	13.3	9.4	12.3
LAKEVIEW RDG. PILLOW	7400	4/01/99	---	15.0	11.1	13.0
LEMHI RIDGE PILLOW	8100	4/01/99	---	10.0	10.4	11.1
LICK CREEK PILLOW	6860	4/01/99	---	11.0	10.5	14.4
LITTLE PARK	7400	3/26/99	40	14.4	12.4	16.3
LOGAN CREEK	4300	3/30/99	25	6.3	3.8	7.1
LONE MOUNTAIN PILLOW	8880	4/01/99	---	22.2	16.9	19.2
LOST HORSE	5940	4/01/99	92	37.4	17.6	32.3
LOST SOUL	4800	3/29/99	60	22.1	9.4	15.3
LOWER TWIN PILLOW	7900	4/01/99	---	17.4	14.7	18.6
LUBRECHT PILLOW	4680	4/01/99	---	3.3	2.8	5.1
LUBRECHT FOREST NO 3	5450	3/31/99	17	4.9	2.8	6.8
LUBRECHT FOREST NO 4	4650	3/31/99	3	1.0	.0	2.1
LUBRECHT FOREST NO 6	4040	3/31/99	4	1.2	.0	2.3
LUBRECHT HYDROPLT	4200	3/31/99	16	5.0	.0	4.2
MADISON PLT PILLOW	7750	4/01/99	---	31.3	20.9	24.8
MANY GLACIER PILLOW	4900	4/01/99	---	17.9	12.1	16.6
MARIAS PASS	5250	3/30/99	53	20.7	11.4	17.4
MAYNARD CREEK	6210	3/25/99	40	14.5	10.0	15.1
MIDDLE MILL CREEK	7850	3/25/99	36	13.6	10.6	16.6
MILL CREEK	7500	3/25/99	35	13.0	11.8	13.7

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
MINERAL CREEK	4000	3/30/99	56	22.5	15.5	17.5
MONUMENT PK PILLOW	8850	4/01/99	---	26.1	19.3	21.4
MOSS PEAK PILLOW	6780	4/01/99	---	42.2	29.8	38.4
MT LOCKHART PILLOW	6400	4/01/99	---	27.2	15.0	21.5
MUDD LAKE	7650	3/29/99	63	25.2	15.2	20.0
MULE CREEK PILLOW	8300	4/01/99	---	18.0	13.5	16.2
NEVADA CREEK PILLOW	6480	4/01/99	---	19.1	10.0	13.4
NEVADA RIDGE PILLOW	7020	4/01/99	---	20.8	11.1	14.2
NEW WORLD	6900	3/26/99	35	12.9	12.7	15.7
NEWTON MOUNTAIN	5600	3/25/99	113	48.8	27.1	35.6
NEZ PERCE CMP PILLOW	5650	4/01/99	---	16.9	11.0	15.1
NEZ PERCE CREEK	6600	3/25/99	19	6.5	5.0	7.1
NEZ PERCE PASS	6570	4/06/99	42	15.8E	13.2	19.2
NOISY BASIN PILLOW	6040	4/01/99	---	45.4	36.0	40.7
N.F. ELK CR PILLOW	6250	4/01/99	---	13.5	9.0	13.2
NF JOCKO PILLOW	6330	4/01/99	---	51.5	33.6	46.7
N.E. ENTRANCE PILLOW	7350	4/01/99	---	11.7	6.9	9.2
NOTCH	8500	4/03/99	55	17.8	19.6	16.4
OPHIR PARK	7150	3/28/99	45	16.8	11.6	18.0
PALISADE CREEK	8250	3/29/99	86	37.1	26.4	29.9
PETERSON MEADOWS	7200	3/31/99	36	10.1	9.6	10.8
PETERSON MDW PILLOW	7200	4/01/99	---	11.4	9.9	11.0
PICKET PIN LOWER	6200	3/30/99	0	.0	.0	3.0
PICKET PIN MIDDLE	7250	3/30/99	22	7.3	6.6	13.4
PICKET PIN UPPER	8100	3/30/99	53	17.2	13.6	20.9
PICKFOOT CRK PILLOW	6650	4/01/99	---	10.0	7.6	11.0
PIKE CREEK PILLOW	5930	4/01/99	---	35.5	17.9	27.9
PIPESTONE PASS	7200	3/26/99	22	6.4	5.0	5.9
PLACER BASIN PILLOW	8830	4/01/99	---	18.1	14.6	19.1
POORMAN CREEK	5100	3/31/99	113	47.3	22.1	34.4
PORCUPINE PILLOW	6500	4/01/99	---	5.2	5.8	7.4
POTOMAGETON PARK	7150	3/28/99	39	14.3	11.5	14.6
RED MOUNTAIN	6000	3/30/99	66	25.6	13.7	18.9
RED TOP	5260	3/25/99	94	39.2	23.2	29.0
REVAIS CREEK	4800	3/26/99	0	.0	.0	2.1
ROCK CREEK	5600	4/02/99	24	6.4	6.4	10.6
ROCK CREEK MEADOW	8160	3/25/99	60	22.4	19.9	22.0
ROCKER PEAK PILLOW	8000	4/01/99	---	13.7	13.3	15.3
ROCKY BOY PILLOW	4700	4/01/99	---	3.4	2.9	4.9
ROCKY BOY	4700	4/01/99	9	1.9	1.0	4.4
SACAJAWEA	6550	3/25/99	41	16.4	11.1	14.6
SADDLE MTN PILLOW	7900	4/01/99	---	29.8	20.4	26.1
SHORT CREEK PILLOW	7000	4/01/99	---	6.0	5.8	6.3
SHOWER FALLS PILLOW	8100	4/01/99	---	21.9	20.1	23.8
SKALKAKO PILLOW	7260	4/01/99	---	31.2	20.4	24.9
SLAG-A-MELT LAKE	8750	4/02/99	67	25.9	19.9	25.8
SLIDE ROCK MOUNTAIN	7100	4/01/99	---	21.5E	11.2	16.7
SMUGGLER MINE	6960	3/25/99	24	8.0	7.5	10.5
S.F. SHIELDS PILLOW	8100	4/01/99	---	18.2	14.9	17.9

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
SPOTTED BEAR MTN.	7000	3/26/99	35	12.8	7.3	14.9
SPUR PARK PILLOW	8100	4/01/99	---	25.2	17.8	22.2
SLEEPING WOMAN PILL	6150	4/01/99	---	21.4	11.5	15.6
STAHL PEAK PILLOW	6030	4/01/99	---	43.7	33.1	35.1
STAHL PEAK	6030	3/29/99	106	42.9	37.8	39.7
STEMPLE PASS	6600	3/24/99	37	12.4	5.4	10.6
STORM LAKE	7780	3/31/99	50	15.5	12.7	14.0
STRYKER BASIN	6180	3/29/99	99	39.2	27.4	34.6
STUART MOUNTAIN	7400	4/01/99	101	39.2	25.2	32.9
STUART MOUNTAIN PILL	7400	4/01/99	---	40.8	24.4	30.9
SUCKER CREEK	3960	4/01/99	4	.5	.0	.4
TAYLOR ROAD	4080	4/01/99	4	.6	.0	2.2
TEN MILE LOWER	6600	3/30/99	17	4.4	4.2	7.8
TEN MILE MIDDLE	6800	3/30/99	32	9.7	7.2	12.2
TEPEE CREEK PILLOW	8000	4/01/99	---	14.9	14.1	13.4
TIMBERLINE CREEK	8850	3/31/99	40	11.5	10.6	14.8
TIZER BASIN PILLOW	6840	4/01/99	---	9.0	10.0	12.0
TRAIL CREEK	7090	4/02/99	31	9.0	7.4	8.7
TRINKUS LAKE	6100	3/25/99	103	45.2	30.6	43.4
TRUMAN CREEK	4060	3/23/99	10	3.2	2.3	3.5
TV MOUNTAIN	6800	4/01/99	60	22.2	13.3	19.2
TWELVEMILE PILLOW	5600	4/01/99	---	21.3	12.7	18.6
TWENTY-ONE MILE	7150	3/30/99	55	21.1	12.7	17.4
TWIN CREEKS	3580	3/26/99	25	8.4	4.9	10.3
TWIN LAKES PILLOW	6400	4/01/99	---	55.0	31.6	40.4
UPPER HOLLAND LAKE	6200	3/26/99	86	35.8	27.2	35.4
WALDRON PILLOW	5600	4/01/99	---	15.5	7.5	11.3
WARM SPRINGS PILLOW	7800	4/01/99	---	23.2	20.5	22.3
WEASEL DIVIDE	5450	3/29/99	104	41.8	26.4	33.8
WEST YELLOWSTONE	6700	3/30/99	40	13.6	8.2	11.6
WEST YELL'ST PILLOW	6700	4/01/99	---	14.8	6.7	11.6
WHISKEY CREEK PILLOW	6800	4/01/99	---	20.9	14.4	17.5
WHITE MILL PILLOW	8700	4/01/99	---	27.8	23.4	25.1
WHITE PINE RIDGE	8850	4/02/99	30	8.4E	7.6	5.8
WILLOW CREEK	6500	3/29/99	9	2.2	6.0	9.5
WOOD CREEK PILLOW	5960	4/01/99	---	11.2	6.5	12.2
WRONG CREEK	5700	3/30/99	39	13.6	5.4	13.6
WRONG RIDGE	6800	3/30/99	54	20.6	10.1	19.4



Montana Water Supply Outlook Report as of April 1, 1999

Storm patterns during March once again favored the Divide between Montana and Idaho. Precipitation amounts were very variable but as a whole were below average. Temperatures were very mild and in the third week of March record to near record temperatures were the normal. Temperatures were about 4 to 8 degrees above average east of the Divide and about 2 to 4 degrees above average west of the Divide.

Snowpack

As of April 1, mountain snow water contents continued to range from below average to well above average. With the near record to record temperatures the third week of March there was some melting of the snowpack at low elevations and south facing slopes. Snowpack, in general, remains near to below average at low elevations and near to above average at higher elevations. There were several cold fronts that come through about the first of April that give a good boost to the snowpack in areas east of the Divide and in the Beartooth and Bighorn Mountains.

Snowpack extremes were the highest in the Kootenai River Basin at 139 percent of average and 187 percent of last year, and the lowest in the Powder River Basin at 83 percent of average and 87 percent of last year.

RIVER BASIN	% OF AVERAGE	% OF LAST YEAR
COLUMBIA	118	164
KOOTENAI	139	187
FLATHEAD	112	155
UPPER CLARK FORK	107	146
BITTERROOT	121	170
LOWER CLARK FORK	133	191
MISSOURI	105	137
MISSOURI HEADWATERS	105	126
JEFFERSON	104	127
MADISON	110	126
GALLATIN	101	124
MISSOURI MAINSTEM	103	162
HEADWATERS MAINSTEM	101	141
SMITH-JUDITH-MUSSELSHELL	93	130
SUN-TETON-MARIAS	116	214
MAINSTEM ABOVE FT. PECK RES	105	164
MILK	87	155
ST. MARY	122	155
ST. MARY & MILK	116	153
YELLOWSTONE	99	114
UPPER YELLOWSTONE	103	126
LOWER YELLOWSTONE (WYOMING)	100	107
WIND	107	111
SHOSHONE	120	132
BIGHORN	107	114
TONGUE	84	92
POWDER	83	87

Precipitation

March mountain and valley precipitation across the state was 66 percent of average and 71 percent of last year, while the water year precipitation was 112 percent of average and 134 percent of last year.

West of the Continental Divide, March mountain and valley precipitation was 77 percent of average and 83 percent of last year and the water year precipitation was 116 percent of average and 145 percent of last year. East of the Divide, March mountain and valley precipitation was 59 percent of average and 63 percent of last year and the water year precipitation was 108 percent of average and 122 percent of last year.

Combined mountain and valley precipitation are as follows:

RIVER BASIN	MARCH % OF AVERAGE	WATER YEAR % OF AVERAGE
COLUMBIA	77	116
KOOTENAI	65	105
FLATHEAD	72	112
UPPER CLARK FORK	72	112
BITTERROOT	80	122
LOWER CLARK FORK	74	124
MISSOURI	58	106
JEFFERSON	52	105
MADISON	57	113
GALLATIN	61	99
MISSOURI MAINSTEM	49	98
SMITH-JUDITH-MUSSELSHELL	63	103
SUN-TETON-MARIAS	69	109
MILK	55	129
ST. MARY	64	113
YELLOWSTONE	61	110
UPPER YELLOWSTONE	61	108
LOWER YELLOWSTONE (WYOMING) ..	64	117
WIND	59	110
SHOSHONE	66	127
BIGHORN	74	117
TONGUE	70	89
POWDER	77	105

Reservoirs

Major reservoir storages statewide were 94 percent of average and 80 percent of last year.

Reservoir storage west of the Continental Divide was 89 percent of average and 72 percent of last year. East of the Continental Divide, reservoir storage was 92 percent of average and 90 percent of last year.

RIVER BASIN	% OF AVERAGE	% OF LAST YEAR
COLUMBIA	89	72
KOOTENAI	71	49
FLATHEAD	98	93
UPPER CLARK FORK	136	98
BITTERROOT	82	101
LOWER CLARK FORK	136	97
MISSOURI	102	90
JEFFERSON	108	92
MADISON	103	99
GALLATIN	168	87
MISSOURI MAINSTEM	99	90
SMITH-JUDITH-MUSSELSHELL	118	88
SUN-TETON-MARIAS	107	88
MILK	80	89
ST. MARY	72	78
YELLOWSTONE	95	91
UPPER YELLOWSTONE	91	76
LOWER YELLOWSTONE	95	91

Streamflow

Across Montana, streamflows are forecast to range between 99 and 119 percent of average.

West of the Continental Divide, streamflows are forecast to range between 104 and 122 percent of average and east of the Continental Divide, streamflows are forecast to range between 93 and 125 percent of average.

Below are River Basin streamflow forecast summaries for the period April 1 through July 31. THESE FORECASTS ASSUME NEAR NORMAL SPRING CONDITIONS AND DO NOT ACCOUNT FOR WELL BELOW AVERAGE (70% or less) OR WELL ABOVE AVERAGE (130% or more) SNOWMELT OR SPRING RAIN. Specific forecast probabilities are available in each individual River Basin Report.

RIVER BASIN	April-July THIS YEAR		April-July LAST YEAR	
	% OF AVERAGE		% OF AVERAGE	
COLUMBIA	104	to 122	63	to 79
KOOTENAI	112	to 129	67	to 78
FLATHEAD	104	to 118	68	to 79
UPPER CLARK FORK	96	to 125	58	to 82
BITTERROOT	111	to 129	66	to 82
LOWER CLARK FORK	95	to 107	58	to 73
MISSOURI	96	to 126	59	to 88
JEFFERSON	90	to 122	72	to 94
MADISON	109	to 123	81	to 92
GALLATIN	83	to 103	79	to 97
MISSOURI MAINSTEM	98	to 126	59	to 88
SMITH-JUDITH-MUSSELSHELL .	94	to 130	53	to 84
SUN-TETON-MARIAS	109	to 143	47	to 80
MILK	92	to 138	28	to 70
ST. MARY	105	to 117	72	to 84
YELLOWSTONE	90	to 112	73	to 96
UPPER YELLOWSTONE	97	to 116	74	to 91
LOWER YELLOWSTONE	83	to 108	72	to 100

Surface Water Supply Index

The Surface Water Supply Index (SWSI) is an indicator of surface water supply conditions for the spring and summer months. Water users that rely on mountain precipitation can use the index to evaluate seasonal surface water supplies. The SWSI accounts for mountain snowpack, mountain precipitation, streamflow, reservoir storage, and soil moisture.

SWSI RATING	SURFACE WATER CONDITION
+3.0 to +4.0	Extremely Wet
+2.0 to +3.0	Moderately Wet
+1.0 to +2.0	Slightly Wet
-1.0 to +1.0	Near Average
-1.0 to -2.0	Slightly Dry
-2.0 to -3.0	Moderately Dry
-3.0 to -4.0	Extremely Dry

SWSI

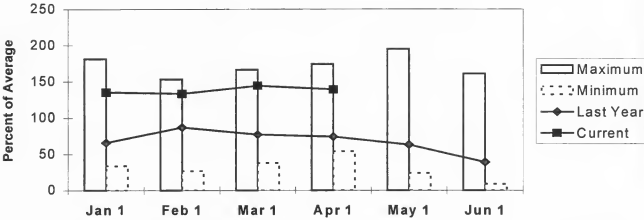
Basin

+1.3	Kootenai River at Ft. Steele (Kootenai in Canada)
+1.3	Tobacco River
+1.0	Kootenai Ft. Steele to Libby Dam
+0.3	Kootenai River below Libby Dam
+1.6	Fisher River
+2.8	Yaak River
+1.3	North Fork Flathead River
+2.1	Middle FORK Flathead River
+0.5	South Fork Flathead River
+1.2	Flathead River at Columbia Falls
+1.0	Stillwater/Whitefish Rivers
-0.1	Swan River
+1.1	Flathead River at Polson
+0.1	Mission Valley
+0.5	Little Bitterroot River
+0.9	Clark Fork River above Rock Creek
+1.2	Blackfoot River
+1.1	Clark Fork River above Missoula
+1.5	Bitterroot River
+1.2	Clark Fork River below Bitterroot River
+1.1	Clark Fork River below Flathead River
+0.7	Beaverhead River
-0.4	Ruby River
+1.0	Big Hole River
-0.5	Boulder River (Jefferson)
+0.7	Jefferson River
+0.7	Madison River
-0.7	Gallatin River
+0.4	Missouri River above Canyon Ferry
+0.2	Missouri River below Canyon Ferry
+1.3	Smith River
+1.6	Sun River
+1.9	Teton River
+1.5	Birch/Dupuyer Creeks
+1.9	Marias River
-0.8	Musselshell River
+0.8	Missouri River above Ft. Peck
+0.6	Missouri River below Ft. Peck
-0.3	Milk River
+2.2	Yellowstone River above Livingston
-1.0	Shields River
+0.6	Boulder River (Yellowstone)
-0.1	Stillwater River
-0.4	Rock/Red Lodge Creeks
+0.5	Clarks Fork River
+1.4	Yellowstone River above Bighorn River
+1.4	Bighorn River below Bighorn Lake
-0.9	Little Bighorn River
+1.4	Yellowstone River below Bighorn River
-1.2	Tongue River
-0.8	Powder River

Kootenai River Basin in Montana

Snowpack conditions in the Kootenai River Basin were well above average. Snow water content was 139 percent of average and 187 percent of last year. This is the fifth highest year of record for the period 1969 through 1998. Poorman Creek has set a new high record; Hawkins Lake is fourth highest of record; and Banfield Mountain was fifth highest of record.

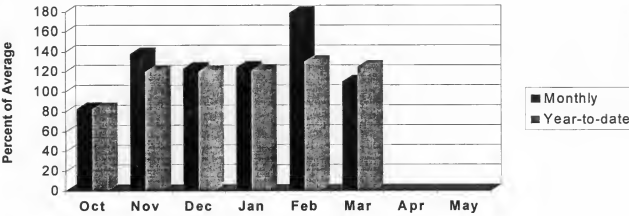
Kootenai Snow Water Equivalent



January maximum swe was established in 1997 and minimum was in 1977; February maximum swe was in 1997 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1974 and minimum swe was in 1977; May maximum swe was in 1974 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during March was 115 percent of average and 116 percent of last year. Valley precipitation during March was 65 percent of average and 55 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 125 percent of average and 157 percent of last year.

Kootenai Precipitation



Lake Koocanusa storage was 71 percent of average and 49 percent of last year.

Surface Water Supply Index (SWSI) was +1.3 in the Kootenai at Ft. Steele (Kootenai in Canada); +1.3 in the Tobacco River; +1.0 in the Kootenai Ft. Steele to Libby Dam; +0.3 in the Kootenai River below Libby Dam; +1.6 in the Fisher River; and +2.8 in the Yaak River.

KOOTENAI RIVER BASIN in Montana
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>					
		Chance Of Exceeding *				30-Yr Avg.	
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)
TOBACCO RIVER nr Eureka	APR-JUL	123	145	160	120	175	197
	APR-SEP	133	158	175	119	192	217
LIBBY Reservoir Inflow (1,2)	APR-JUL	5202	5964	6310	109	6656	7418
	APR-SEP	6090	6984	7390	109	7736	8690
FISHER RIVER nr Libby	APR-JUL	225	264	290	124	316	355
	APR-SEP	242	282	310	124	338	378
YAAK RIVER nr Troy	APR-JUL	578	639	680	141	721	782
	APR-SEP	604	667	710	141	753	816
KOOTENAI at Leona (1,2)	APR-JUL	6445	7391	7820	109	8249	9195
	APR-SEP	7410	8497	8990	109	9483	10570

KOOTENAI RIVER BASIN in Montana Reservoir Storage (1000 AF) - End of March					KOOTENAI RIVER BASIN in Montana Watershed Snowpack Analysis - April 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number Of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
LAKE KOOCANUSA	5748.0	1528.0	3102.0	2141.0	KOOTENAI in CANADA	23	162	126
					KOOTENAI MAINTSTEM	7	211	156
					TOBACCO	3	141	120
					FISHER	5	189	124
					YAAK	8	187	141
					KOOTENAI in MONTANA	22	186	138
					KOOTENAI ab BONNERS FERRY	45	175	133

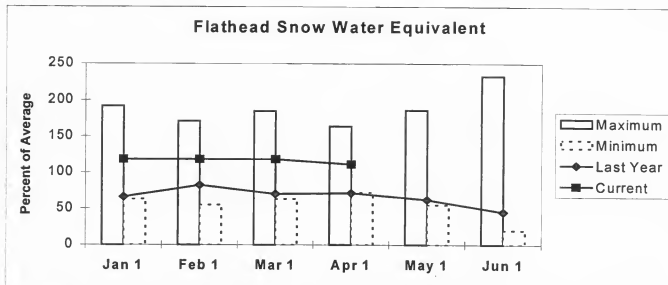
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural volume - actual volume may be affected by upstream water management.
 (D) - The operational measurement of flow at this point has been discontinued.

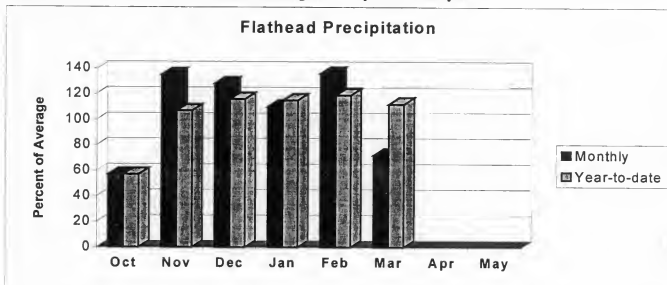
Flathead River Basin

Snowpack conditions in the Flathead River Basin were above average. Snow water content was 111 percent of average and 155 percent of last year.



January maximum swe was established in 1997 and minimum was in 1988; February maximum swe was in 1972 and minimum was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum was in 1992; May maximum swe was in 1972 and minimum was in 1992; and June maximum swe was in 1974 and minimum was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during March was 74 percent of average and 72 percent of last year. Valley precipitation during March was 34 percent of average and 23 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 112 percent of average and 138 percent of last year.



Combined Camas reservoir storage was 159 percent of average and 105 percent of last year; combined Mission Valley reservoir storage was 69 percent of average and 73 percent of last year; Hungry Horse storage was 95 percent of average and 84 percent of last year; and Flathead Lake storage was 105 percent of average and 131 percent of last year.

Surface Water Supply Index (SWSI) was +1.3 in the North Fork Flathead River; +2.1 in the Middle Fork Flathead River; +0.5 in the South Fork Flathead River; +1.2 in the Flathead River at Columbia Falls; +1.0 in the Stillwater/Whitefish Rivers; -0.1 in the Swan River; +1.1 in the Flathead River at Polson; +0.1 in the Mission Valley; and +0.5 in the Little Bitterroot River.

FLATHEAD RIVER BASIN
Streamflow Forecasts - April 1, 1999

		<<----- Drier ----- Future Conditions ----- Wetter ----->>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (100AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
NF FLATHEAD nr Columbia Falls	APR-JUL	1613	1760	1860	112	1960	2107	1662
	APR-SEP	1777	1940	2050	112	2160	2323	1836
MF FLATHEAD nr West Glacier	APR-JUL	1702	1820	1900	116	1980	2098	1638
	APR-SEP	1847	1980	2070	116	2160	2293	1788
HUNGRY HORSE Reservoir Inflow (1,2)	APR-JUL	1879	2127	2240	109	2353	2601	2051
	APR-SEP	1916	2235	2380	109	2525	2844	2184
FLATHEAD at Columbia Falls (1,2)	APR-JUL	5067	5805	6140	112	6475	7213	5482
	APR-SEP	5400	6273	6670	112	7067	7940	5960
STILLWATER nr Whitefish	APR-JUL	156	191	215	114	239	274	189
	APR-SEP	170	209	235	112	261	300	209
WHITEFISH nr Kalispell	APR-JUL	90	105	115	111	125	140	104
	APR-SEP	101	118	130	112	142	159	116
SWAN RIVER nr Bigfork	APR-JUL	470	536	580	100	624	690	583
	APR-SEP	549	615	660	99	705	771	665
FLATHEAD Lake Inflow (1,2)	APR-JUL	6142	6815	7120	111	7425	8098	6390
	APR-SEP	6585	7366	7720	112	8074	8855	6926

FLATHEAD RIVER BASIN Reservoir Storage (1000 AF) - End of March					FLATHEAD RIVER BASIN Watershed Snowpack Analysis - April 1, 1999		
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr Average
		This Year	Last Year	Avg			
CAMAS (4)	45.2	37.8	36.1	23.7	NF FLATHEAD in CANADA	3	152
MISSION VALLEY (8)	100.0	28.1	38.7	40.9	MF FLATHEAD in MONTANA	9	149
HUNGRY HORSE	3451.0	1946.0	2324.0	2046.0	MIDDLE FORK FLATHEAD	7	174
FLATHEAD LAKE	1791.0	792.2	603.1	751.9	SOUTH FORK FLATHEAD	9	144
					STILLWATER-WHITEFISH	10	164
					SWAN	9	138
					MISSION VALLEY	5	140
					LITTLE BITTERROOT-ASHLEY	6	186
					JOCKO	5	164
					FLATHEAD in MONTANA	43	154
					FLATHEAD RIVER BASIN	46	154

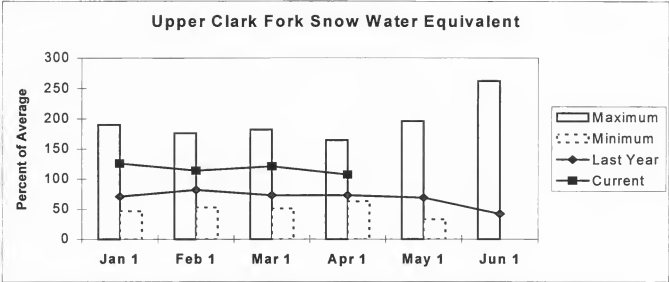
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural volume - actual volume may be affected by upstream water management.
 (3) - The operational measurement of flow at this point has been discontinued.

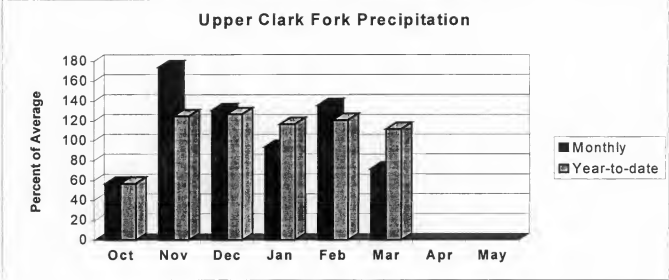
Upper Clark Fork River Basin

Snowpack conditions in the Upper Clark Fork River Basin were near average. Snow water content was 107 percent of average and 146 percent of last year. Nevada Creek is the third highest of record and Copper Bottom is the eighth highest of record.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum was in 1994; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1975 and minimum swe was in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during March was 74 percent of average and 92 percent of last year. Valley precipitation during March was 41 percent of average and 42 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 112 percent of average and 142 percent of last year.



Lower Willow Creek storage was 139 percent of average and 97 percent of last year; and Nevada Creek storage was 136 percent of average and 98 percent of last year.

Surface Water Supply Index (SWSI) was +0.9 in the Clark Fork River above Rock Creek; +1.2 in the Blackfoot River; and +1.1 in the Clark Fork River above Missoula.

UPPER CLARK FORK RIVER BASIN
Streamflow Forecasts - April 1, 1999

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)	
WARM SPRINGS CK at Anaconda (D)	APR-JUL	27	35	40	105	45	53	30
	APR-SEP	34	43	49	104	55	64	47
LITTLE BLACKFOOT nr Garrison	APR-JUL	46	68	83	100	98	120	83
	APR-SEP	49	73	89	100	105	129	89
FLINT CREEK nr Southern Cross	APR-JUL	8.0	11.9	14.5	102	17.1	21	14.2
	APR-SEP	9.0	13.8	17.0	102	20	25	16.7
FLINT CREEK b/w Boulder Ck	APR-JUL	41	56	66	115	75	90	57
	APR-SEP	53	71	83	113	94	112	73
LOWER WILLOW CK Reservoir Inflow	APR-JUL	8.9	12.5	15.0	107	17.5	21	14.0
	APR-SEP	9.6	13.4	16.0	108	18.6	22	14.8
MF ROCK CREEK nr Philipsburg	APR-JUL	64	73	80	121	87	96	66
	APR-SEP	72	83	90	122	97	108	74
ROCK CREEK nr Clinton	APR-JUL	282	331	365	123	399	448	296
	APR-SEP	313	368	405	122	442	497	333
NEVADA CREEK nr Finn	APR-JUL	13.4	18.5	22	115	26	31	19.1
	APR-SEP	14.9	20	24	114	28	33	21
CLEARWATER nr Clearwater	APR-JUL	130	157	175	102	193	220	172
	APR-SEP	139	166	185	102	204	231	181
BLACKFOOT RIVER nr Bonner	APR-JUL	738	861	945	113	1029	1152	835
	APR-SEP	828	960	1050	113	1140	1272	926
CLARK FORK abv Milltown	APR-JUL	472	623	725	111	827	978	652
	APR-SEP	552	721	835	111	949	1118	755
CLARK FORK abv Missoula	APR-JUL	1349	1540	1670	112	1800	1991	1487
	APR-SEP	1526	1737	1880	112	2023	2234	1681

UPPER CLARK FORK RIVER BASIN Reservoir Storage (1000 AF) - End of March					UPPER CLARK FORK RIVER BASIN Watershed Snowpack Analysis - April 1, 1999		
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr Average
		This Year	Last Year	Avg			
GEORGETOWN LAKE		NO REPORT			CLARK FORK ab FLINT CREEK	17	124
LOWER WILLOW CREEK	4.9	3.2	3.3	2.3	FLINT CREEK	7	120
NEVADA CREEK	12.6	9.9	10.1	7.3	ROCK CREEK	6	149
					CLARK FORK ab BLACKFOOT	26	133
					BLACKFOOT	17	180
					UPPER CLARK FORK BASIN	40	146

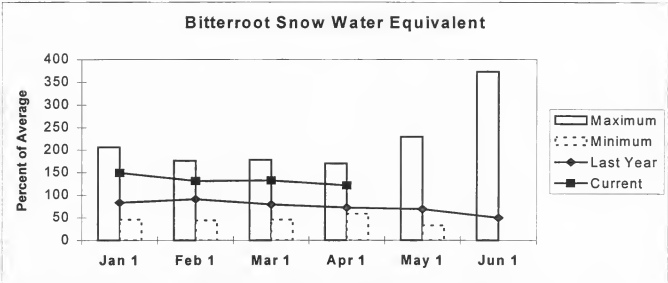
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

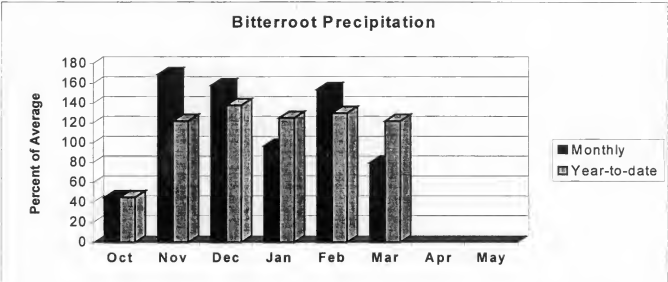
Bitterroot River Basin

Snowpack conditions in the Bitterroot River Basin were above average. Snow water content was 121 percent of average and 170 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1977; May maximum swe was in 1972 and minimum swe was in 1987; and June maximum swe was 1972 and 1974 and minimum swe was in 1987 and 1992. Average is for the period 1961 through 1990.

Mountain precipitation during March was 81 percent of average and 100 percent of last year. Valley precipitation during March was 72 percent of average and 175 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 122 percent of average and 143 percent of last year.



Painted Rocks Lake storage was 85 percent of average and 341 percent of last year and Como storage was 80 percent of average and 61 percent of last year.

Surface Water Supply Index (SWSI) was +1.5 in the Bitterroot River.

BITTERROOT RIVER BASIN
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
WF BITTERROOT nr Conner (2)	APR-JUL	140	164	180	118	196	220	152
	APR-SEP	149	176	195	118	214	241	166
BITTERROOT nr Derby	APR-JUL	455	521	565	115	609	675	491
	APR-SEP	507	574	620	115	666	733	540
COMO Reservoir Inflow	APR-JUL	83	91	97	123	103	111	79
	APR-SEP	87	96	102	123	108	117	83
SKALKAGO CK nr Hamilton	APR-JUL	45	52	57	124	62	69	46
	APR-SEP	52	60	65	123	70	78	53
BITTERROOT at Missoula	APR-JUL	1364	1487	1570	121	1653	1776	1300
	APR-SEP	1489	1621	1710	120	1799	1931	1420

BITTERROOT RIVER BASIN Reservoir Storage (1000 AF) - End of March					BITTERROOT RIVER BASIN Watershed Snowpack Analysis - April 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
PAINTED ROCKS LAKE	31.7	11.6	3.4	13.6	WEST FORK BITTERROOT	3	145	107
COMO	34.9	12.4	20.4	15.5	EAST SIDE BITTERROOT	6	154	117
					WEST SIDE BITTERROOT	4	194	129
					BITTERROOT RIVER BASIN	12	170	121

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

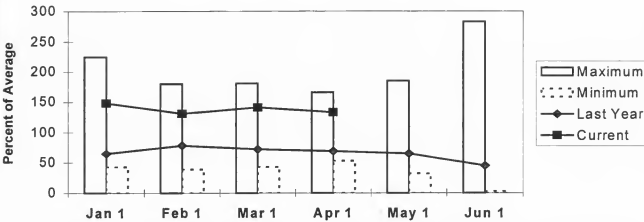
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 (3) - The operational measurement of flow at this point has been discontinued.

Lower Clark Fork River Basin

Snowpack conditions in the Lower Clark Fork River Basin were well above average. Snow water content was 133 percent of average and 191 percent of last year.

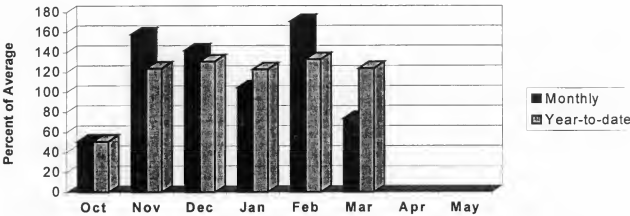
Lower Clark Fork Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum swe was in 1981; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1977. Average is for the period 1961 through 1990.

Mountain precipitation during March was 79 percent of average and 96 percent of last year. Valley precipitation during March was 53 percent of average and 59 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 124 percent of average and 160 percent of last year.

Lower Clark Fork Precipitation



Noxon Rapids storage was 136 percent of average and 97 percent of last year.

Surface Water Supply Index (SWSI) was +1.2 in the Clark Fork River below Bitterroot River and +1.1 in the Clark Fork River below Flathead River.

LOWER CLARK FORK RIVER BASIN
Streamflow Forecasts - April 1, 1999

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)	

CLARK FORK abv Missoula	APR-JUL	1349	1540	1670	112	1800	1991	1487
	APR-SEP	1526	1737	1880	112	2023	2234	1681
CLARK FORK b/w Missoula	APR-JUL	2751	3042	3240	116	3438	3729	2788
	APR-SEP	3052	3372	3590	116	3808	4128	3099
CLARK FORK at St. Regis (1)	APR-JUL	3306	3969	4270	116	4571	5234	3686
	APR-SEP	3659	4396	4730	116	5064	5801	4095
CLARK FORK nr Plains (1,2)	APR-JUL	9626	11052	11700	112	12348	13774	10450
	APR-SEP	10519	12088	12800	112	13512	15081	11470
THOMPSON nr Thompson Falls	APR-JUL	206	232	250	117	268	294	214
	APR-SEP	235	262	280	117	298	325	240
PROSPECT CREEK at Thompson Falls	APR-JUL	142	156	165	134	174	188	123
	APR-SEP	151	165	175	133	185	199	132
CLARK FK at Whitehorse Rpds (1,2)	APR-JUL	10590	12247	13000	111	13753	15410	11730
	APR-SEP	11648	13472	14300	111	15128	16952	12910

LOWER CLARK FORK RIVER BASIN
Reservoir Storage (1000 AF) - End of March

LOWER CLARK FORK RIVER BASIN
Watershed Snowpack Analysis - April 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***				Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg				Last Yr	Average
WOKON RAPIDS	335.0	315.4	326.4	231.3	LOWER CLARK FORK BASIN	13	191	133	

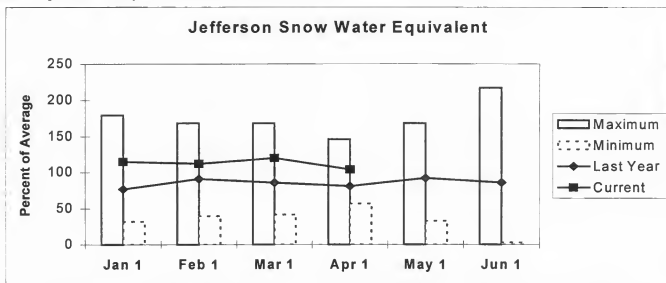
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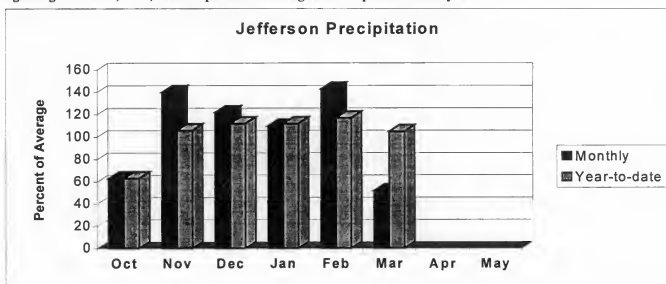
Jefferson River Basin

Snowpack conditions in the Jefferson River Basin were near average. Snow water content was 104 percent of average and 127 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum was in 1977; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1982 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during March was 53 percent of average and 65 percent of last year. Valley precipitation during March was 40 percent of average and 42 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 105 percent of average and 117 percent of last year.



Lima storage was 140 percent of average and 100 percent of last year; Clark Canyon storage was 101 percent of average and 87 percent of last year; and Ruby River storage was 105 percent of average and 107 percent of last year.

Surface Water Supply Index (SWSI) was +0.7 in the Beaverhead River; -0.4 in the Ruby River; +1.0 in the Big Hole River; -0.5 in the Boulder River; and +0.7 in the Jefferson River as a whole.

JEFFERSON RIVER BASIN
Streamflow Forecasts - April 1, 1999

		<<----- Drier ----- Future Conditions ----- Wetter ----->>						
Forecast Point	Forecast Period	Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LIMA Reservoir Inflow (2)	APR-JUL	72	95	110	113	126	148	97
	APR-SEP	74	100	118	112	136	162	105
BEAVERHEAD RIVER near Grant (2)	APR-JUL	101	133	155	117	177	209	132
	APR-SEP	115	154	180	116	206	245	155
BEAVERHEAD RIVER at Barretts (2)	APR-JUL	132	172	200	116	228	268	172
	APR-SEP	150	198	230	113	262	310	203
RUBY RIVER Reservoir Inflow	APR-JUL	54	67	75	90	83	96	83
	APR-SEP	67	81	90	91	100	114	99
BIG HOLE RIVER near Melrose	APR-JUL	562	677	755	118	833	948	641
	APR-SEP	609	735	820	118	905	1031	697
BOULDER RIVER near Boulder	APR-JUL	31	58	76	89	94	121	85
	APR-SEP	33	62	82	90	102	131	91
WILLOW CREEK Reservoir Inflow	APR-JUL	6.6	13.4	18.0	102	23	29	17.7
	APR-SEP	6.7	14.6	20	100	25	33	20
JEFFERSON RIVER near Three Forks (2)	APR-JUL	717	877	985	100	1093	1253	985
	APR-SEP	727	896	1010	100	1124	1293	1012

JEFFERSON RIVER BASIN Reservoir Storage (1000 AF) - End of March					JEFFERSON RIVER BASIN Watershed Snowpack Analysis - April 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
LIMA	84.0	51.8	52.0	36.9	BEAVERHEAD	17	121	108
CLARK CANYON	255.6	154.9	178.2	153.6	RUBY	11	109	92
RUBY RIVER	38.8	32.9	30.7	31.2	BIGHOLE	21	138	110
					BOULDER	9	115	91
					JEFFERSON RIVER BASIN	48	127	104

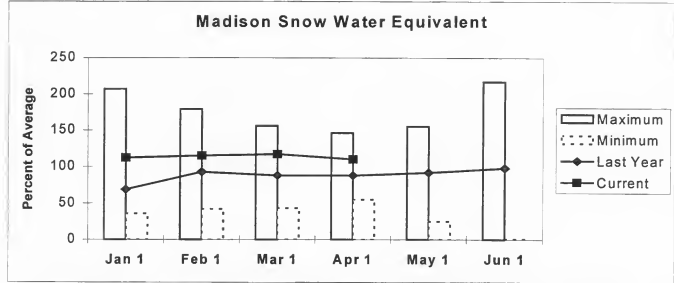
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The average is computed for the 1961-1990 base period.

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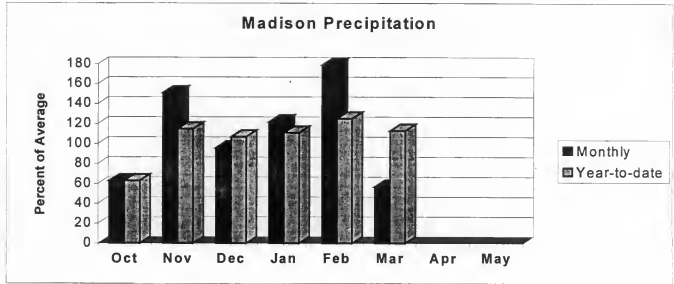
Madison River Basin

Snowpack conditions in the Madison River Basin were slightly above average. Snow water content was 110 percent of average and 126 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1997 and minimum was in 1977; April maximum swe was in 1997 and minimum was in 1977; May maximum swe was in 1997 and minimum swe was in 1977; and June maximum swe was in 1995 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain and valley precipitation during March was 58 percent of average and 61 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 113 percent of average and 123 percent of last year.



Ennis Lake storage was 93 percent of average and 105 percent of last year and Hebgen Lake storage was 105 percent of average and 98 percent of last year.

Surface Water Supply Index (SWSI) was +0.7 for the Madison River.

MADISON RIVER BASIN
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----->>		Future Conditions		>>>> Wetter <<<<		30-Yr Avg. (100AF)
		Chance Of Exceeding *						
		90% (100AF)	70% (100AF)	50% (Most Probable) (100AF)	(% AVG.)	30% (100AF)	10% (100AF)	
HEBGEN LAKE Inflow	APR-JUL	388	428	455	120	482	522	380
	APR-SEP	503	549	580	119	611	657	486
ENNIS LAKE Inflow (2)	APR-JUL	630	695	740	112	785	850	662
	APR-SEP	788	867	920	111	973	1052	831

MADISON RIVER BASIN Reservoir Storage (1000 AF) - End of March					MADISON RIVER BASIN Watershed Snowpack Analysis - April 1, 1999		
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr Average
		This Year	Last Year	Avg			
ENNIS LAKE	41.0	31.0	29.6	33.2	MADISON abv HEBGEN LAKE	5	143
HEBGEN LAKE	377.5	258.3	262.4	246.6	MADISON b/w HEBGEN LAKE	12	118
					MADISON RIVER BASIN	17	126

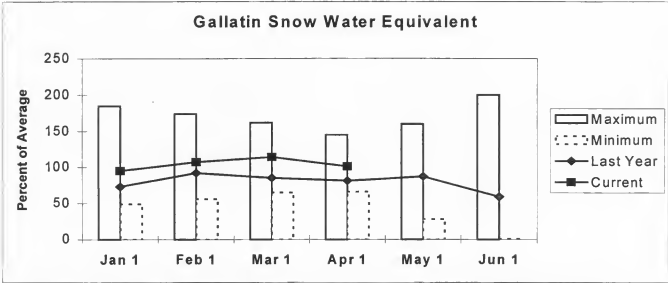
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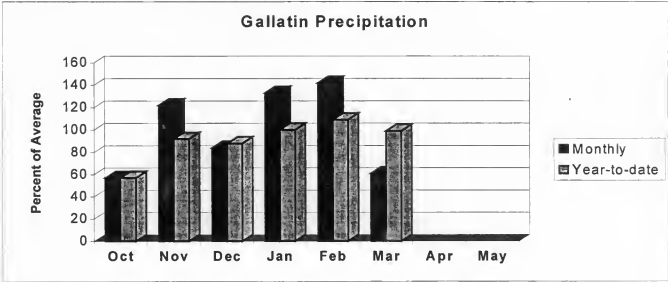
Gallatin River Basin

Snowpack conditions in the Gallatin River Basin were near average. Snow water content was 101 percent of average and 124 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1966; February maximum swe was in 1997 and minimum was in 1981; March maximum swe was in 1997 and minimum was in 1977 and 1987; April maximum swe was in 1997 and minimum was in 1987; May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1975 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during March was 59 percent of average and 68 percent of last year. Valley precipitation during March was 95 percent of average and 80 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 99 percent of average and 118 percent of last year.



Middle Creek storage was 168 percent of average and 87 percent of last year.

Surface Water Supply Index (SWSI) was -0.7 for the Gallatin River.

GALLATIN RIVER BASIN
Streamflow Forecasts - April 1, 1999

		<<----- Drier ----- Future Conditions ----- Wetter ----->>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
GALLATIN RIVER near Gateway	APR-JUL	384	432	465	105	498	546	441
	APR-SEP	457	512	550	106	588	643	518
HYALITE Reservoir Inflow	APR-JUL	15.5	18.3	20	88	22	25	23
	APR-SEP	17.9	21	23	88	25	28	26
HYALITE CREEK nr Boreman (2)	APR-JUL	24	29	33	90	36	42	36
	APR-SEP	27	33	38	89	42	48	42
GALLATIN RIVER at Logan (2)	APR-JUL	274	373	440	88	507	606	498
	APR-SEP	339	450	525	90	600	711	581

GALLATIN RIVER BASIN					GALLATIN RIVER BASIN			
Reservoir Storage (1000 AF) - End of March					Watershed Snowpack Analysis - April 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr Average	
		This Year	Last Year	Avg			Last Yr	Average
MIDDLE CREEK	10.2	6.9	7.9	4.1	UPPER GALLATIN	7	124	105
					HYALITE	4	109	84
					BRIDGER	3	141	109
					GALLATIN RIVER BASIN	14	124	101

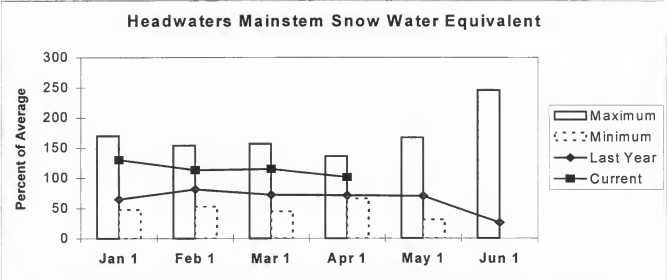
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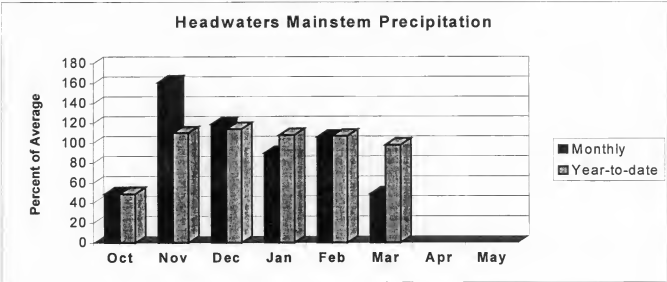
Missouri Mainstem River Basin

Snowpack conditions in the Headwaters Missouri Mainstem River Basin were near average. Snow water content was 101 percent of average and 141 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1961; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during March was 56 percent of average and 76 percent of last year. Valley precipitation during March was 31 percent of average and 45 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 98 percent of average and 123 percent of last year.



Canyon Ferry Lake storage was 97 percent of average and 88 percent of last year; Helena Valley storage was 135 percent of average and 135 percent of last year; Lake Helena storage was 109 percent of average and 102 percent of last year; Hauser & Helena storage was 104 percent of average and 100 percent of last year; Holter Lake storage was 121 percent of average and 100 percent of last year; and Fort Peck Lake storage was 103 percent of average and 101 percent of last year.

Surface Water Supply Index (SWSI) was +0.4 in the Missouri River above Canyon Ferry; +0.2 in the Missouri River below Canyon Ferry; +0.8 in the Missouri River above Fort Peck; and +0.6 in the Missouri River below Fort Peck.

MISSOURI MAINSTEM RIVER BASIN
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
MISSOURI RIVER at Toston (2)	APR-JUL	1625	1997	2250	108	2503	2875	2075
	APR-SEP	1882	2316	2610	108	2904	3338	2416
PRICKLY PEAR CREEK near Clancy	APR-JUL	12.7	17.9	22	94	25	30	23
	APR-SEP	15.1	21	26	94	30	36	27
GIBSON Reservoir Inflow	APR-JUL	428	501	550	115	599	672	478
	APR-SEP	469	547	600	114	653	731	526
MISSOURI RIVER at Fort Benton (2)	APR-JUL	2452	3076	3500	113	3924	4548	3087
	APR-SEP	2906	3614	4140	113	4666	5407	3678
MARIAS RIVER near Shelby (2)	APR-JUL	468	556	615	138	674	762	447
	APR-SEP	497	585	645	132	705	793	487
MISSOURI RIVER at Virgelle (2)	APR-JUL	2892	3677	4210	117	4743	5528	3595
	APR-SEP	3500	4323	4920	117	5517	6579	4217
MISSOURI RIVER near Landusky (2)	APR-JUL	3350	4157	4705	121	5253	6060	3897
	APR-SEP	3847	4892	5480	120	6068	7328	4580
MISSOURI RIVER below Fort Peck (2)	APR-JUL	3422	4201	4730	118	5259	6038	4015
	APR-SEP	3618	4857	5430	122	6003	7192	4467
LAKE SAKAKAWA Inflow (2)	APR-JUL	10183	11354	12150	123	12946	14117	9897
	APR-SEP	10552	12947	13910	123	14873	17586	11346

MISSOURI MAINSTEM RIVER BASIN Reservoir Storage (1000 AF) - End of March					MISSOURI MAINSTEM RIVER BASIN Watershed Snowpack Analysis - April 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites		
		This Year	Last Year	Avg		This Year as % of Last Yr	Average	
CANTON FERRY LAKE	2043.0	1447.0	1637.0	1489.0	HEADWATERS MAINSTEM	10	141	101
HELENA VALLEY	9.2	4.7	4.0	4.0	SMITH-JUDITH-MUSSELSHELL	16	132	92
LAKE HELENA	10.4	11.1	10.9	10.2	SUN-TETON-MARIAS	14	214	116
HAUSER & HELENA	61.9	63.2	63.1	61.0	MAINSTEM ab FT PECK RES	39	164	104
HOLTER LAKE	81.9	81.1	80.8	67.2	MILK RIVER BASIN	4	155	87
FORT PECK LAKE (MAF)	18.9	15.3	15.2	14.9	MISSOURI MAINSTEM BASIN	42	162	102

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

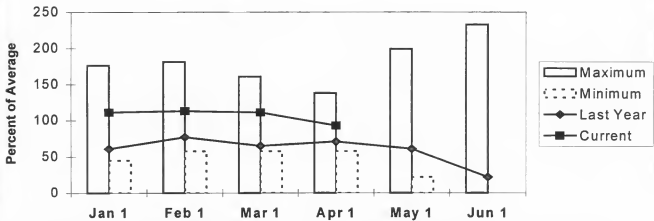
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Smith-Judith-Musselshell River Basins

Snowpack conditions in the Smith-Judith-Musselshell River Basins were slightly below average. Snow water content was 93 percent of average and 130 percent of last year. Snow water content in the Smith River Basin was 102 percent of average and 136 percent of last year; in the Judith River Basin was 92 percent of average and 127 percent of last year; and in the Musselshell Basin River was 91 percent of average and 127 percent of last year.

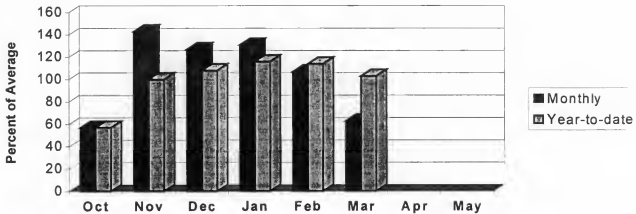
Smith-Judith-Musselshell Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe in 1988; February maximum swe was in 1978 and minimum swe was in 1987; March maximum swe was in 1978 and minimum swe was in 1987; April maximum swe was in 1970 and minimum swe was in 1992; and May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation during March in the Smith-Belts was 42 percent of average and 49 percent of last year; in the Judith was 81 percent of average and 65 percent of last year; and in the Musselshell was 78 percent of average and 51 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 103 percent of average and 130 percent of last year.

Smith-Judith-Musselshell Precipitation



Smith River storage was 120 percent of average and 91 percent of last year; Newlan Creek storage was 108 percent of average and 94 percent of last year; Bair storage was 91 percent of average and 86 percent of last year; Martinsdale storage was 118 percent of average and 64 percent of last year; and Deadman's Basin was 122 percent of average and 94 percent of last year.

Surface Water Supply Index (SWSI) was +1.3 in the Smith River and -0.8 in the Musselshell River.

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Streamflow Forecasts - April 1, 1999

		<----- Drier ----->				Future Conditions		>----- Wetter ----->		
Forecast Point	Forecast Period			Chance Of Exceeding *						30-Yr Avg (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)			
SMITH RIVER near Fort Logan (D)	APR-JUL	37	57	70	113	83	103	62		
	APR-SEP	45	68	83	114	99	121	73		
SHEEP CREEK nr White Sulphur Springs	APR-JUL	15.6	18.2	20	111	22	24	18.1		
	APR-SEP	17.9	21	23	111	25	29	21		
SMITH RIVER b/w Eagle Creek	APR-JUL	147	179	200	114	221	253	175		
	APR-SEP	171	212	240	114	268	309	210		
NF MUSSELSHELL near Delpine	APR-JUL	3.03	4.44	5.40	113	6.36	7.77	4.80		
	APR-SEP	3.59	5.20	6.30	113	7.40	9.01	5.60		
SF MUSSELSHELL abv Martinsdale	APR-JUL	24	44	57	110	70	90	52		
	APR-SEP	26	47	61	109	75	96	56		

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Reservoir Storage (1000 AF) - End of March

SMITH-JUDITH-MUSSELSHELL RIVER BASINS
Watershed Snowpack Analysis - April 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
SMITH RIVER	10.6	8.9	9.8	7.4	SMITH	7	136	102
NEWLAN CREEK	12.4	9.0	9.6	8.3	JUDITH	8	132	90
BAIR	7.0	4.3	5.0	4.7	MUSSELSHELL	8	127	91
MARTINDALE	23.1	11.4	17.9	9.7	SMITH-JUDITH-MUSSELSHELL	16	132	92
DEADMAN'S BASIN	72.2	61.0	65.0	50.1				

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

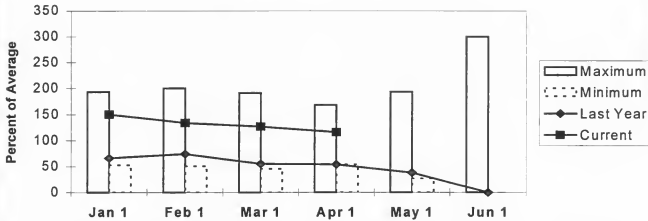
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural volume - actual volume may be effected by upstream water management.
 (D) - The operational measurement of flow at this point has been discontinued.

Sun-Teton-Marias River Basins

Snowpack conditions in the Sun-Teton-Marias River Basins were above average. Snow water content was 116 percent of average and 214 percent of last year. Snow water content in the Sun River Basin was 106 percent of average and 202 percent of last year; in the Teton River Basin was 123 percent of average and 234 percent of last year; and in the Marias River Basin was 121 percent of average and 222 percent of last year.

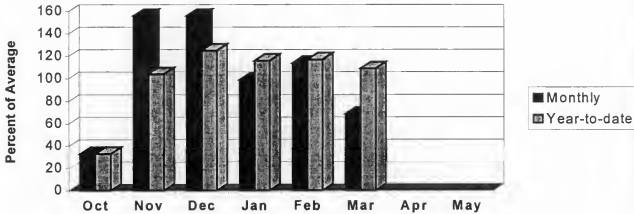
Sun-Teton-Marias Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1984; April maximum swe was in 1972 and minimum swe was in 1984; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation during March in the Sun was 25 percent of average and 30 percent of last year; in the Teton was 71 percent of average and 93 percent of last year; and in the Marias was 78 percent of average and 95 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 109 percent of average and 156 percent of last year.

Sun-Teton-Marias Precipitation



Gibson storage was 90 percent of average and 94 percent of last year; Pishkun storage was 109 percent of average and 101 percent of last year; Willow Creek storage was 98 percent of average and 75 percent of last year; Lower Two Medicine Lake storage was 92 percent of average and 58 percent of last year; Four Horns Lake storage was 66 percent of average and 76 percent of last year; Swift storage was 93 percent of average and 86 percent of last year; Lake Frances storage was 69 percent of average and 67 percent of last year; and Lake Elwell (Tiber) storage was 114 percent of average and 91 percent of last year.

Surface Water Supply Index (SWSI) was +1.6 in the Sun River; +1.9 in the Teton River; +1.5 in the Birch/Dupuyer Creeks; and +1.9 in the Marias River.

SUN-TETON-MARIAS RIVER BASINS
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<===== Drier =====>>				Future Conditions		>>===== Wetter =====>>		30-Yr Avg. (1000AF)
		Chance Of Exceeding *								
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)			
GIBSON Reservoir Inflow	APR-JUL	428	501	550	115	599	672	478		
	APR-SEP	469	547	600	114	653	731	526		
TWO MEDICINE RIVER nr Browning (2)	APR-JUL	212	251	278	129	305	344	215		
	APR-SEP	227	266	293	129	320	359	228		
BADGER CREEK near Browning (2)	APR-JUL	96	116	130	125	144	164	104		
	APR-SEP	114	135	150	125	165	186	120		
SWIFT Reservoir Inflow	APR-JUL	57	72	83	122	94	109	68		
	APR-SEP	69	86	97	121	108	125	80		
DUFOYER CREEK near Valier	APR-JUL	3.7	13.1	19.5	126	26	35	15.5		
	APR-SEP	4.6	14.7	22	124	28	38	17.4		
CUT BANK CREEK at Cut Bank	APR-JUL	83	99	110	126	121	137	87		
	APR-SEP	90	108	120	125	132	150	96		
MARIAS RIVER near Shelby (2)	APR-JUL	468	556	615	138	674	762	447		
	APR-SEP	497	585	645	132	705	793	487		

SUN-TETON-MARIAS RIVER BASINS
Reservoir Storage (1000 AF) - End of March

SUN-TETON-MARIAS RIVER BASINS
Watershed Snowpack Analysis - April 1, 1999

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Date Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GIBSON	99.1	45.6	48.4	50.5	SUN	7	204	107
PISHKUN	32.0	19.4	19.2	17.8	TETON	4	234	123
WILLOW CREEK	32.2	22.4	29.9	22.8	MARIAS	6	222	121
LOWER TWO MEDICINE LAKE	11.9	6.9	11.9	7.5	SUN-TETON-MARIAS	14	214	116
FOUR HORNS LAKE	19.2	8.3	10.9	12.5				
SWIFT	30.0	16.0	18.6	17.2				
LAKE FRANCES	112.0	49.7	74.5	71.6				
LAKE ELWELL (TIBER)	1347.0	682.9	753.2	596.7				

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

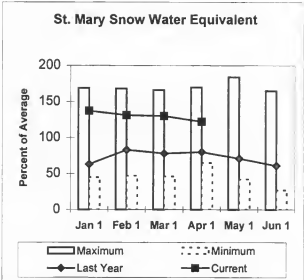
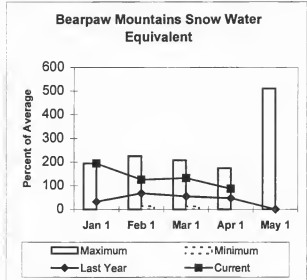
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(2) - The value is natural volume - actual volume may be affected by upstream water management.

(3) - The operational measurement of flow at this point has been discontinued.

St. Mary and Milk River Basins

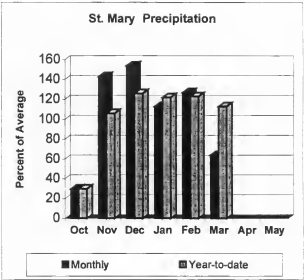
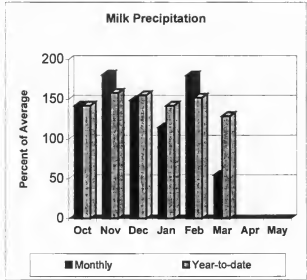
Snowpack conditions in the St. Mary and Milk River Basins were above average. Snow water content in the Saint Mary River Basin was 122 percent of average and 152 percent of last year. The Milk River Basin (Bearpaw Mountains) was 87 percent of average and 155 percent of last year.



Bearpaw - January maximum swe was established in 1978 and minimum swe was in 1981; February maximum swe was 1978 and minimum was in 1973; March maximum swe was 1978 and minimum swe was 1981; April maximum swe was in 1975 and minimum swe was in 1983; May maximum swe was 1975 and the minimum has occurred in several years. Average is for the period 1961 through 1990.

St. Mary - January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1992; May maximum swe was in 19972 and minimum swe was in 1977; and June maximum swe was in 1991 and minimum swe was 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation in the St. Mary River Basin during March was 64 percent of average and 65 percent of last year; and in the Milk River Basin during March was 55 percent of average and 40 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 120 percent of average and 146 percent of last year.



Lake Sherburne storage was 72 percent of average and 78 percent of last year; Fresno storage was 65 percent of average and 91 percent of last year; Beaver Creek storage was 145 percent of average and 123 percent of last year; and Nelson storage was 107 percent of average and 85 percent of last year.

Surface Water Supply Index (SWSI) was -0.3 for the Milk River.

ST. MARY and MILK RIVER BASINS
Streamflow Forecasts - April 1, 1999

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LAKE SHERBURNE Inflow	APR-JUL	104	112	118	110	124	132	107
	APR-SEP	120	130	136	109	142	152	125
ST. MARY RIVER near Babb	APR-JUL	372	407	430	109	453	488	395
	APR-SEP	434	473	500	108	527	566	463
ST. MARY RIVER at US/CAN Border (2)	APR-JUL	442	491	525	114	559	608	462
	APR-SEP	517	572	610	113	648	703	539
MILK RIVER at Western Crossing	APR-JUL	26	37	45	122	53	64	37
	APR-SEP	27	39	48	123	57	70	39
MILK RIVER at Eastern Crossing (2)	APR-JUL	39	55	67	115	78	94	58
	APR-SEP	49	64	74	110	84	99	67
BEAVER CREEK Reservoir Inflow	APR-JUL	3.36	7.46	10.25	108	13.04	17.14	9.50

ST. MARY and MILK RIVER BASINS Reservoir Storage (1000 AF) - End of March					ST. MARY and MILK RIVER BASINS Watershed Snowpack Analysis - April 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
LAKE SHERBURNE	64.3	17.8	22.8	24.8	ST. MARY	3	152	122
FRESNO	127.0	50.2	55.1	77.1	BEARPAW MOUNTAINS	4	155	87
BEAVER CREEK	3.5	3.2	2.6	2.2	CYPRESS HILLS, CANADA	0	0	0
NELSON	66.8	39.0	45.9	36.5	MILK RIVER BASIN	4	155	87
					ST. MARY & MILK BASINS	7	153	116

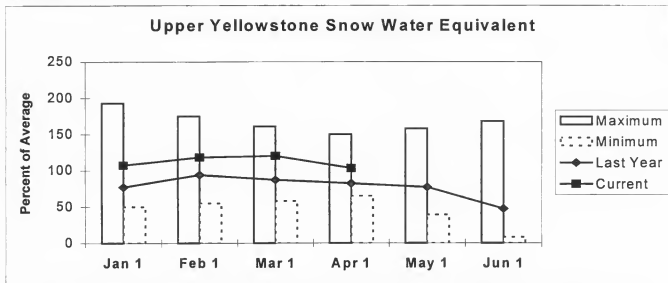
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The average is computed for the 1961-1990 base period.

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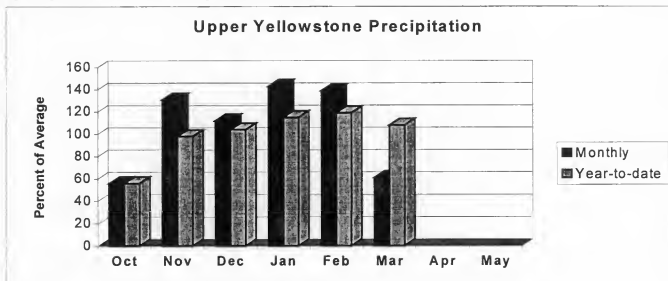
Upper Yellowstone River Basin

Snowpack conditions in the Upper Yellowstone River Basin were near average. Snow water content was 103 percent of average and 126 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1997 and minimum swe was in 1977; March maximum swe was in 1997 and minimum swe was in 1977; April maximum swe was in 1971 and minimum swe was in 1981; May maximum swe was in 1997 and minimum swe was in 1987; and June maximum swe was 1982 and minimum swe was in 1987 and 1994. Average is for the period 1961 through 1990.

Mountain precipitation during March was 63 percent of average and 69 percent of last year. Valley precipitation during March was 38 percent of average and 60 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 108 percent of average and 120 percent of last year.



Mystic Lake storage was 39 percent of average and 86 percent of last year and Cooney storage was 100 percent of average and 76 percent of last year.

Surface Water Supply Index (SWSI) was +2.2 in the Yellowstone River above Livingston; -1.0 in the Shields River; +0.6 in the Boulder River; -0.1 in the Stillwater River; -0.4 in the Rock/Red lodge Creeks; +0.5 in the Clarks Fork River; and +1.4 in the Yellowstone River above Bighorn River.

UPPER YELLOWSTONE RIVER BASIN
Streamflow Forecasts - April 1, 1999

Forecast Point	Forecast Period	<<----- Drier ----->>		Future Conditions *		----- Wetter ----->>		30-Yr Avg. (1000AF)
		90%	70%	50% (Most Probable)		30%	10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
YELLOWSTONE at Lake Outlet	APR-JUL	600	660	700	122	740	800	573
	APR-SEP	837	910	960	121	1010	1083	792
YELLOWSTONE RIVER at Corwin Spgs.	APR-JUL	1771	1908	2000	124	2092	2229	1609
	APR-SEP	2143	2287	2385	123	2483	2627	1937
YELLOWSTONE RIVER near Livingston	APR-JUL	2126	2244	2325	125	2406	2524	1855
	APR-SEP	2531	2676	2775	124	2874	3019	2241
SHIELDS RIVER nr Livingston	APR-JUL	54	99	130	80	161	206	162
	APR-SEP	56	109	145	81	181	234	179
BOULDER RIVER at Big Timber	APR-JUL	279	321	350	105	379	421	335
	APR-SEP	298	347	380	104	413	462	364
MYSTIC LAKE Reservoir Inflow (2)	APR-JUL	55	61	65	107	69	75	61
	APR-SEP	72	79	84	106	89	96	79
STILLWATER RIVER nr Absarokae (2)	APR-JUL	398	462	505	101	548	612	498
	APR-SEP	484	553	600	101	647	716	593
CLARK'S FORK RIVER nr Belfry	APR-JUL	480	531	565	106	599	650	532
	APR-SEP	531	584	620	105	656	709	590
COONEY Reservoir Inflow (2)	APR-JUL	13.3	29	40	85	51	67	47
	APR-SEP	22	38	49	86	60	76	57
YELLOWSTONE RIVER at Billings (2)	APR-JUL	3221	3664	3965	111	4266	4709	3577
	APR-SEP	4548	4774	5100	121	5426	5685	4211

UPPER YELLOWSTONE RIVER BASIN
Reservoir Storage (1000 AF) - End of March

Reservoir	Usable Capacity	*** Usable Storage ***			
		This Year	Last Year	Avg	
MYSTIC LAKE	21.0	1.2	1.4	3.1	
COONEY	27.4	16.9	22.3	16.9	

UPPER YELLOWSTONE RIVER BASIN
Watershed Snowpack Analysis - April 1, 1999

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
YELLOWSTONE ab LIVINGSTON	16	130	114
SHIELDS	7	131	100
BOULDER-STILLWATER	7	132	94
CLARK'S FORK-ROCK CREEK	12	118	98
UPPER YELLOWSTONE BASIN	38	126	103

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

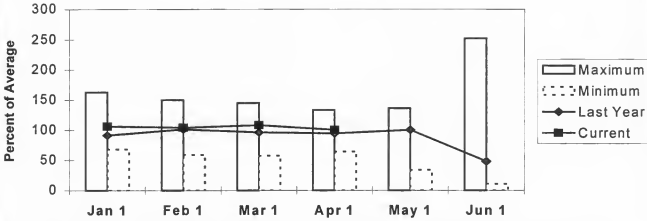
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 (3) - The operational measurement of flow at this point has been discontinued.

Lower Yellowstone River Basin

Snowpack conditions in the Lower Yellowstone River Basin, in Wyoming, were at average. Snow water content was 100 percent of average and 107 percent of last year.

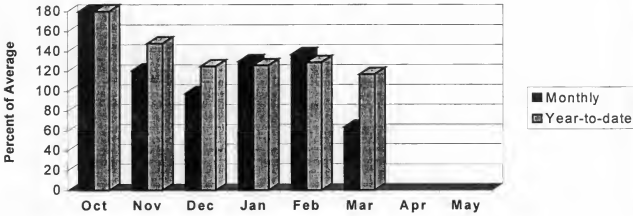
Lower Yellowstone Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe was in 1981; February maximum swe was in 1997 and minimum swe was in 1981; March maximum swe was in 1986 and minimum swe was in 1977; April maximum swe was in 1986 and minimum swe was in 1981; May maximum swe was in 1997 and minimum swe was in 1981; and June maximum swe was in 1995 and minimum swe was in 1994. Average is for the period 1961 through 1990.

Mountain and valley precipitation during March was 64 percent of average and 55 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1998, was 117 percent of average and 113 percent of last year.

Lower Yellowstone Precipitation



Bighorn Lake storage was 98 percent of average and 91 percent of last year and Tongue River storage was 34 percent of average and 129 percent of last year.

Surface Water Supply Index (SWSI) was +1.4 in the Bighorn River below Bighorn Lake; -0.9 in the Little Bighorn River; +1.4 in the Yellowstone River below Bighorn River; -1.2 in the Tongue River; and -0.8 in the Powder River.

LOWER YELLOWSTONE RIVER BASIN
Streamflow Forecasts - April 1, 1999

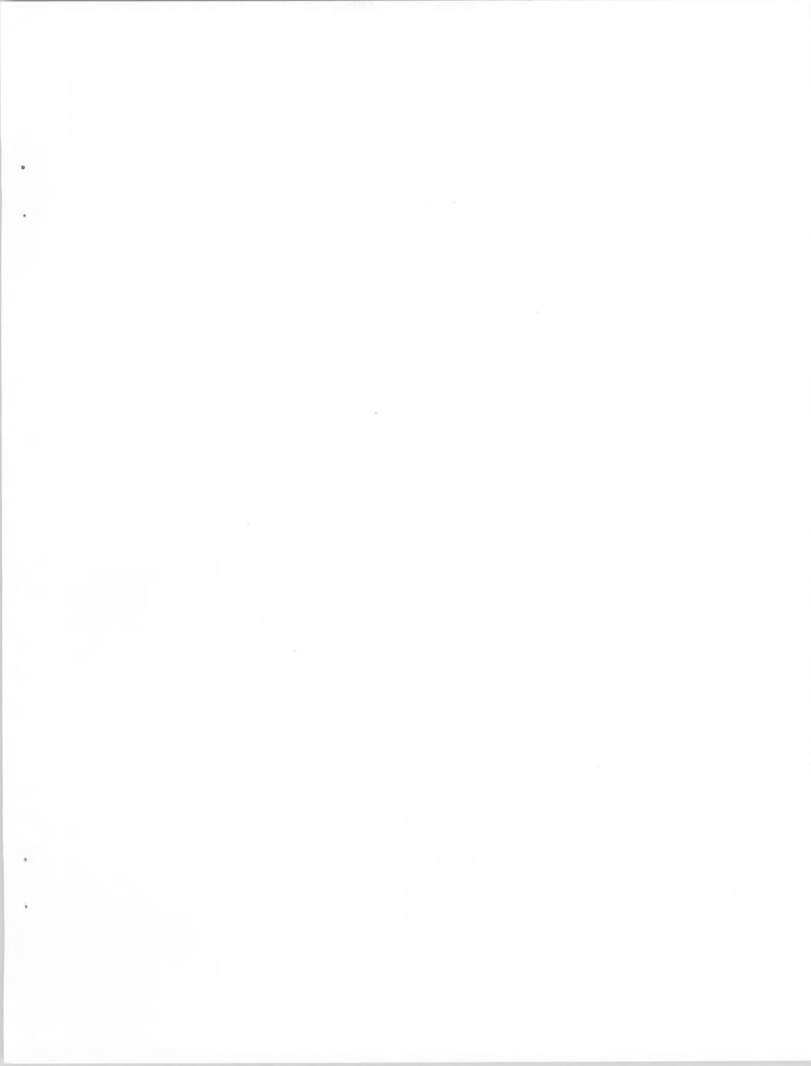
Forecast Point	Forecast Period	<----- Drier ----- Future Conditions ----- Wetter ----->					
		Chance Of Exceeding *				30-Yr Avg.	
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	30% (1000AF)	10% (1000AF)	(1000AF)
YELLOWSTONE RIVER at Billings (2)	APR-JUL	3221	3664	3965	111	4266	4709
	APR-SEP	4548	4774	5100	121	5426	5685
BIGHORN RIVER nr St. Xavier (2)	APR-JUL	1458	1721	1900	116	2079	2342
	APR-SEP	1579	1916	2100	117	2284	2619
LITTLE BIGHORN RIVER nr Hardin	APR-JUL	51	80	100	71	120	149
	APR-SEP	60	91	113	72	135	166
TONGUE RIVER Reservoir Inflow (2)	APR-JUL	106	153	185	80	217	264
	APR-SEP	122	171	205	80	239	288
YELLOWSTONE RIVER at Miles City (2)	APR-JUL	5100	5913	6465	119	7017	7830
	APR-SEP	6281	6917	7500	119	8083	8793
POWDER RIVER at Moorehead	APR-JUL	64	124	165	78	206	266
	APR-SEP	82	143	185	80	227	288
POWDER RIVER near Locate	APR-JUL	84	138	175	69	212	266
	APR-SEP	88	152	195	71	238	302
YELLOWSTONE RIVER nr Sidney (2)	APR-JUL	5258	6355	7100	120	7845	8942
	APR-SEP	6678	7352	8200	120	9048	9812

LOWER YELLOWSTONE RIVER BASIN Reservoir Storage (1000 AF) - End of March					LOWER YELLOWSTONE RIVER BASIN Watershed Snowpack Analysis - April 1, 1999			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BIGHORN LAKE	1356.0	782.6	860.4	798.5	WIND RIVER (Wyoming)	19	111	107
TONGUE RIVER	68.0	12.3	9.5	36.1	SHOSHONE RIVER (Wyoming)	7	132	120
					BIGHORN RIVER (Wyoming)	21	114	107
					LITTLE BIGHORN (Wyoming)	3	92	82
					TONGUE RIVER (Wyoming)	9	91	82
					POWDER RIVER (Wyoming)	9	87	83
					LOWER YELLOWSTONE BASIN	47	106	100

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Bozeman, MT 59715



Montana
Basin Outlook Report
Natural Resources Conservation Service
Bozeman, MT

